UNITED STATES ARMY

NOVEMBER 1986

AVIATION DIGEST

air–

land

battle

NOVEMBER 1986 • VOLUME 32 • NUMBER 11

1 **FM 1-140, "Helicopter Gunnery,"** MG Ellis D. Parker

2 **Air-Land Battle—PART I: Dramatic Changes in Emerging Aviation Doctrine,** BG Rudolph Ostovich III

10 **Cold Weather Threat,** CPT Dale W. Clelland

12 **Views From Readers**

13 **Army Aviation Museum: Bell AH-1G HueyCobra**

14 **It Can Get You in Trouble**

16 **PEARL'S**

19 **Coping With Stress,** CPT James J. Picano, Ph.D.

25 **Exploiting Opportunities,** MAJ (P) Charles Cook and MAJ (P) C.B. Wilson

26 **DES Report to the Field: Terminating Flying Status of Nonrated Aviation Personnel,** SFC William A. Kruczek

28 **Aviation Personnel Notes: Comments of Note; Aviation Logistics Issues; Promotions**

30 **Taking Charge,** CPT Johnnie A. Ham

34 **Above the Best—CW2 Gerald W. Bonds**

35 **Conducting a Unit Reorganization,** 1LT James W. Wallace

38 **ATC Update: Passing the Baton,** COL Charles Woodhurst

40 **Volcano—Proving Army Aviation with a UH-60 Scatterable Mining Capability,** Mr. Keith E. Aakre

Back Cover: **ATC Action Line: USAASO Answers Your Questions, CW4 Lawrence K. Hanna**

Cover: **Representing the air-land battle concept are the UH-60 and F-18 (air), M2 Bradley Fighting Vehicle (infantry/ground) and M1 tank (armor). Story begins on page 2.**

page 13

page 30

VOLCANO

page 40

Honorable John O. Marsh Jr.
Secretary of the Army

Major General Ellis D. Parker
Commander
U.S. Army Aviation Center

Brigadier General Rodney D. Wolfe
Assistant Commandant
U.S. Army Aviation Center

Richard K. Tierney
Editor

The mission of the *U.S. Army Aviation Digest* (USPS 415-350) is to provide information of an operational, functional nature concerning safety and aircraft accident prevention, training, maintenance, operations, research and development, aviation medicine and other related data.

The *Digest* is an official Department of the Army periodical published monthly under the supervision of the commander, U.S. Army Aviation Center. Views expressed herein are not necessarily those of the Department of the Army nor the U.S. Army Aviation Center. Photos are U.S. Army unless otherwise specified. Use of the masculine pronoun is intended to include both genders unless otherwise stated. Material may be reprinted provided credit is given to the *Aviation Digest* and to the author unless otherwise indicated.

Articles, photos and items of interest on Army Aviation are invited. Direct communication is authorized by writing Editor, *U.S. Army Aviation Digest*, P.O. Box 699, Fort Rucker, AL 36362-5044, or by calling either AUTOVON 558-3178 or Commercial 205-255-3178. Manuscripts returned only upon request.

Use of funds for printing of this publication has been approved by the Secretary of the Army, 19 February 1985, in accordance with Army Regulation 310-1. Second-class postage paid at Daleville, AL, and additional mailing offices.

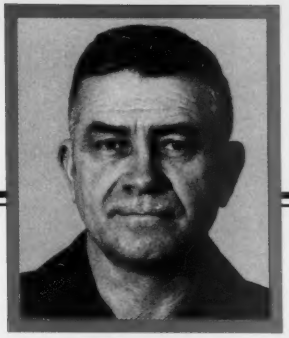
Active Army units receive distribution under the pinpoint distribution system as outlined in AR 310-2. Complete DA Form 12-5-R and send directly to CDR, AG Publications Center, 2800 Eastern Boulevard, Baltimore, MD 21220. For any change in distribution requirements, initiate revised DA Form 12-5-R.

National Guard and Army Reserve units under pinpoint distribution should submit DA Form 12-5-R. Other National Guard units submit requests through their state adjutant general.

Those not eligible for official distribution or who desire personal copies of the *Digest* can order the magazine from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

POSTMASTER: Send address changes to Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Major General Ellis D. Parker
Chief, Army Aviation Branch



FM 1-140, "Helicopter Gunnery"

SUCCESSFUL MISSION accomplishment on today's air-land battlefield requires attack helicopter crews to place effective fire on the enemy. The ability to do that derives from a realistic unit training program that challenges the attack crews.

In January 1987, FM 1-140, "Helicopter Gunnery," will be published. It provides an aerial gunnery program that enables units to attain and maintain their combat proficiency throughout the year based on their missions and availability of local resources.

This new manual replaces FC 1-140 and incorporates the strategies and standards of DA Circular 350-85-4, "Standards in Training Commission." It reflects needed changes in training philosophy, organization and content, many of them stemming from the fact that graduates from an attack helicopter aviator qualification course are now considered individually qualified and ready to begin training at the crew level on arrival at their units.

The gunnery training concept presented in FM 1-140 begins with the individual training conducted here at the Aviation Center at Ft. Rucker, AL, and progresses to a maintainable collective level as appropriate for the unit's mission. This is important because each unit's proficiency level should be maintained throughout the year and should not begin at ground zero with each qualification or gunnery cycle.

The generic tables in FC 1-140 have given way to separate tables designed specifically for attack, cavalry and light infantry aviation units. Several target arrays have been provided for each table category (commander's, crew, team, and combined arms/joint air attack team) resulting in tailor-made gunnery tables designed to fit target arrays of local ranges while still attaining standardized training objectives. This added information precludes commanders from "waiving" gunnery table requirements due to insufficient target arrays.

For the first time in Army Aviation aerial gunnery history, measurable standards of qualification are provided in FM 1-140. Qualification in each category is based on 9 successful engagements out of a possible 12 at various prescribed distances. A unit is considered qualified when 75 percent of its authorized aircraft are manned with aviators qualified at crew level. This is the minimum maintainable level mandated by FM 1-140. But, units are urged to train to maintain a higher level than "crew," preferably "team."

FM 1-140 is an aerial gunnery manual written by aviators for aviators with full consideration of the tenets of air-land battle doctrine. Objective scoring and qualification criteria coupled with mission-specific gunnery scenarios provide precise evaluation of unit readiness status and training needs. The result is totally realistic gunnery training that will enhance our effectiveness on the modern multidimensional battlefield.

air-land battle

Brigadier General Rudolph Ostovich III

Brigadier General Ostovich was assigned as the assistant commandant, U.S. Army Aviation Center, Ft. Rucker, AL, when he wrote this article.

PART I: Dramatic Changes in Emerging Aviation Doctrine

CONSIDER FOR a moment the modernization effort that took place in the mid-1970s and now is coming to full maturation:

- The M1 Abrams main battle tank;
- The Bradley Infantry Fighting Vehicle;
- The multiple integrated laser engagement system (MILES);
- The AH-64 Apache advanced attack helicopter.

These programs brought multibillions of dollars via the Defense Department, into the Army. These new weapon systems also bring new complexities and a new approach to fighting.

Right behind the rapidly emerging modernization effort follows a notion of how the Army should be organized to employ the new, lethal, war-fighting machines. That translates into the Army of Excellence (AOE). But, as if modernization is not enough, we now have unscrewed the organization of the Army and plugged in a whole new "how-to-do-it" business in terms of force structure. Soldiers, you are confronted not only with modernization problems and new high-technology weapon systems, but also with a new force structure, new organizations. This is definitely not easy to accommodate.

As if the above is not enough, we now add a third dimension—the business of a whole new doctrine—air-land battle. Those who think nothing is new or dramatically different in air-land battle doctrine over what we have been teaching in our schools, and professing to our forces in the field, are missing the boat. There is, inherent in air-land battle doctrine, dramatic change, new stuff worthy of being noted.

There is yet a fourth dimension to add. It is the Army Aviation Branch, a new, dramatic dimension. Since its creation almost 4 years ago it has had all the inherent kinds of problems—all the "turf" issues, all the business about who are the real experts, and how we should really fight.

Army Aviation resides in one way or another at the Aviation Center, Ft. Rucker, AL; it is found at other locations as extensions of the Aviation Center, or branch home base; it is found in the hearts and minds of soldiers in Army Aviation organizations around the world. In fact the commanders of aviation units around the world are the cutting edge of this new stuff called Army Aviation.

Commanders must understand air-land battle doctrine and how to fight Army Aviation. Read, for example, the recently published Field Manual (FM) 90-14, "Rear Battle," concerning rear area operations. It doesn't acknowledge that Army Aviation exists in the force structure. Yet, we know—and so do our commanders in most cases—that the most viable, dramatically capable organization within a command (at division or corps level) required to successfully conduct the rear battle is in fact the aviation brigade. This means a major rewrite must be done on FM 90-14.

Let's look at another example: Field Circular (FC) 100-1-103, "Army Airspace Command and Control (A^2C^2)." As long as I've been involved with it, Army Aviation has been totally ignorant on these matters. If you don't believe me commanders, the next time you walk into one of your company or battalion operations tactical operations centers (TOCs), look at the situation maps and see whether any of the A^2C^2 data that is going to keep your aviators alive in a hostile environment is posted on them. See whether there is a low level transit route, or high density aircraft zone or any of those things that must be as much a part of the aviator's bag as has always been a part of the short-range air defense bag.

If commanders don't have a harmonious sharing of A^2C^2 informa-

tion at division or corps levels, they are condemning our soldiers to defeat in their own backyard. Why? Because our air defense strategy, as it is today in the U.S. Army, assumes that everyone in our part of the battlefield understands the hierarchy of air defense. If our aviators go plundering through a free-fire zone, they are going to get shot down. If free-fire zone information is not posted in the battalion or company TOC, how are our aviators going to know it?

A quick check is simply for commanders to go out and ask their aviation people if they have read FC 100-1-103. If they haven't, have them read it. It may not be the best manual in the world, but I think, philosophically, it captures all the important items commanders and their soldiers need to know. FC 100-1-103 provides the material needed by battlefield commanders to successfully adapt the regulation to fit unit standing operating procedures.

Our experience in Korea a couple of year's ago was that the Koreans—who take as gospel what the Americans say—took FC 100-1-103, put it into practice and had great success with it. The Koreans didn't try to change the regulation, didn't try to amend it, didn't say, "That's not the way I do business," didn't say, "I have a better idea." They simply took it for what it was worth and instituted it, literally overnight, and had great success with it.

FM 1-111, "Aviation Brigade," now is arriving in the field. The manual had received a great review from the folks at the Combined Arms Center, Ft. Leavenworth, KS. They responded with some *good*, candid comments that were incorporated into the manual. They are appreciated, and so would your comments be if you think changes need to be made in the FM. Send comments to:
Department of Combined Arms Tactics, U.S. Army Aviation Center, Ft. Rucker, AL 36362-5263.

FM 1-111 covers the cross-FLOT (forward line of own troops) operation in great detail. I believe the Army Aviation Branch owes that to commanders, not in broad generalities but in specifics.

The intricate nature of the cross-FLOT operation requires a great deal of care, preparation, coordination and synchronization to bring the Air Force into the Air Force-Army context, or to bring the Navy into a light-infantry, low-intensity conflict scenario.

A group of brigadier generals, recently selected for assistant division commander assignments, went through Leavenworth for a refresher course. They were quite skeptical about the notion that Army Aviation could survive in cross-FLOT operations. Their skepticism is unwarranted. If the up-front work is done (a smart intelligence preparation of the battlefield and the detailed coordination of the joint arena) Army Aviation offers a great opportunity to corps and division commanders to dynamically turn inside that enemy commander's decision loop. Aviation can reach out and hit the enemy deep, where the attack is least expected, and do it quickly and effectively.

FM 1-112, "Attack Helicopter Battalion," is our best guess on how to fight an attack battalion. We have some great challenges there with the AHIP (Army Helicopter Improvement Program), but we picked it to tie the doctrine to a piece of equipment.

Much interest is centering around FM 1-107, "Air-to-Air," and the T-120 two-part test.* The first part is the exportable training package, which is coming to you soon. The other long-range important part of the test details how to do air combat maneuvering.

FM 1-107 is the doctrinal piece. I also recommend you read FM 1-104, "Forward Arming and Refueling Points" (FARP), which is the logistics backbone of what we are trying to do—and also the Achilles' heel of Army Aviation. I have rewritten portions of it. I hope I have cast it in context of air-land battle; that is, FARP operations in the rear, close-in and deep operations areas. We have had very little success in getting new equipment out to you. I know the sensitivities associated with that. We need to get some reliable lightweight equipment

*T-120 is the name given to an ongoing helicopter air-to-air combat (ATAC) test. ATAC-1 was completed recently at Ft. Hunter-Liggett, CA. It centered only on air-to-air. ATAC-2 is scheduled for next fall and will be expanded to include air-to-air in the combined arms—probably also at Ft. Hunter-Liggett.

Commanders must read aviation literature in order to understand air-land battle doctrine.

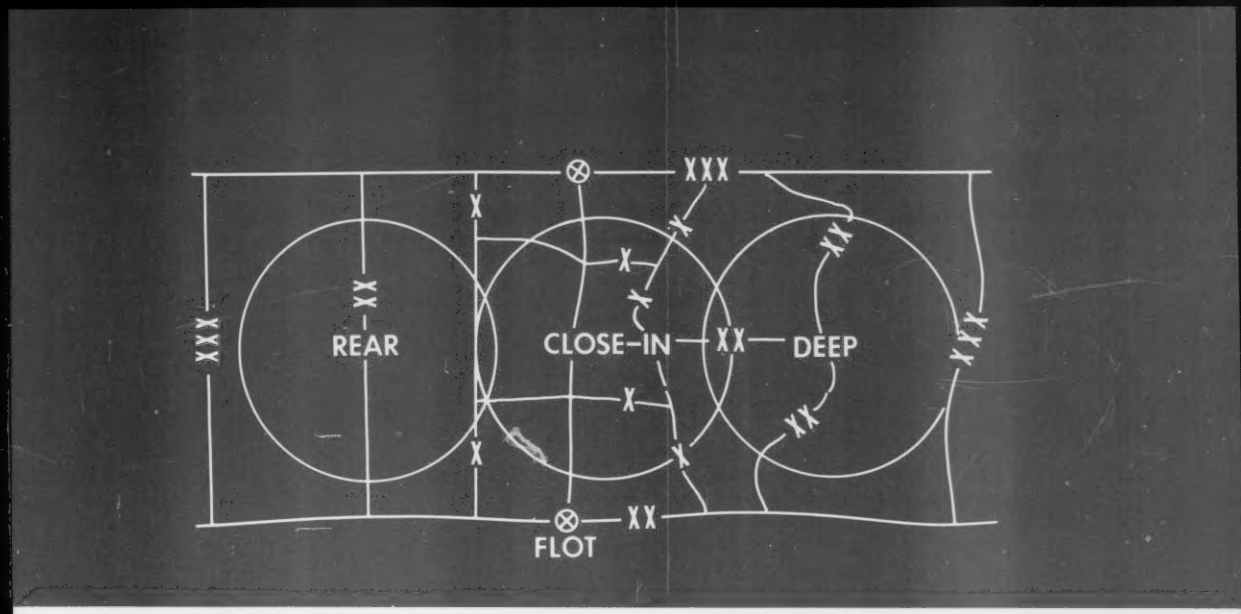


FIGURE 1: The air-land battle.

that our soldiers can use to refuel aircraft quickly.

Figure 1 depicts something you will see in FM 100-5, "Operations"; it is taught in all our common core curricula throughout the Training and Doctrine Command, and especially at Ft. Leavenworth. It is the notional context of the air-land battle—the interrelationships of rear, close-in and deep combat operations. They are not pure, but overlap. This is important because it is principally how our Army thinks of air-land battle. The figure presents a two-dimensional view of the battlefield: length and width. I would rather have you think of air-land battle in the context of what some young captain in the Aviation Center's Department of Combined Arms Tactics called "Rudy's Cube" (figure 2).

Rudy's Cube reflects the same kind of thought as figure 1, only it is cast in a three-dimensional layout. This is how Army aviators must think of air-land battle doctrine. Relative to ground maneuver, the ground maneuver brigade com-

FIGURE 2: The three-dimensional air-land battle.

mander has a relatively small piece of the division battle area to worry about (compared to that of the aviation maneuver brigade commander). The *aviation brigade* at the division level influences the entire division area of operation. The same principle applies to corps level for the *aviation brigade*. That is the portion of the battlefield where the aviation commanders operate. It is different from ground maneuver counterparts at the various echelons.

There is a rather dramatic difference in the amount of change commanders must accommodate between modernization, AOE and air-land battle doctrine. It is remarkably different. When one starts talking about attack under AOE, for example, it is different from an attack battalion, or even an attack company in the H-series. This brings us to two important points:

- Army Aviation must talk at an echelon one above that of its ground forces commander counterparts.
- We cannot afford the luxury of a two-dimensional war.

Major General Ellis D. Parker (the Aviation Center commander) and I have wrestled with the notion of maneuver, which has always been cast in the context of combat. But, all that has been said and written about maneuver is indeed not intended to give the impression that it is the only thing Army Aviation has to offer. No less important are the things in the world of warfare that Army Aviation traditionally has done exceptionally well.

The combat support and combat service support aspects of Army Aviation have always been of the greatest importance. I urge Army Aviation commanders to discuss these issues at their division and corps levels, to bring balance into those conversations and to talk with equal weight about all components of warfare—for they all play significant parts.

Recently, I visited the National Training Center (NTC) at Ft. Irwin, CA. By giving up five spaces on the Aviation Center's table of distribution and allowances, the Army Aviation Branch has established a cadre of observers and controllers (a lieutenant colonel and four captains) who are permanently assigned. They are earning their pay. What I report here about NTC relates to how Army Aviation commanders are fighting, wherever they are fighting. That is the test of a principle.

Early one morning, Brigadier General (P) Edwin S. Leland Jr., NTC commander, and I flew out to a little place in the middle of the California desert. He had positioned a captain with his jeep out there some hours before. We landed, got out of the helicopter and went to the jeep. We began moving across the valley floor and joined forces with about 140 to 150 opposing forces (OPFOR) (Red forces) vehicles moving down that valley floor—two battalions abreast. We were going after a Blue battalion task force that was dug in and given the mission to defend. There was one company of helicopters. I think they were cavalry troops, but they were performing in the role of attack helicopters as a part of this Blue task force. They were kept under the brigade commander's control.

The enemy (Red forces) was going to move along two columns down the wide valley floor. At its widest point, the floor was 6 or 7 kilometers and narrowed down to 2 kilometers. The enemy moved about 20 to 30 miles per hour in the darkness—surrogate T-62 Soviet medium tanks, armored personnel carriers and armored reconnaissance vehicles—smoking down the valley floor. The main force was obviously going to come right through and around OP (observation post) Brown (figure 3).

When I had arrived at NTC, the night before, I had gone into the "Star Wars" building and learned that (before this operation that BG

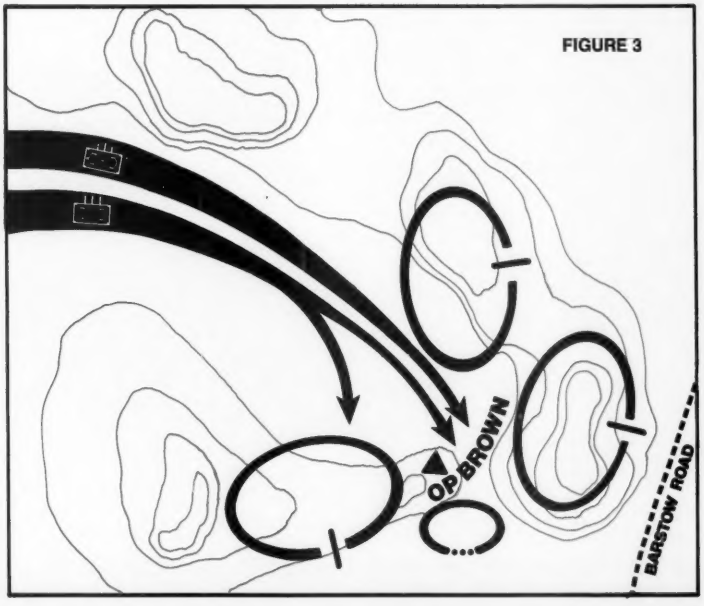


FIGURE 3

(P) Leland and I were witnessing) the enemy force moved its reconnaissance elements, in great number, into the Blue forces. The Blue forces commander had 36 hours to prepare for this defense—*36 hours, a-day-and-a-half!* It was about 24 hours later that BG (P) Leland and I showed up in the midst of these combat operations.

On the night before the dawn attack, the OPFOR simply moved mounted and unmounted reconnaissance elements into the command posts of the various companies. I observed all this from the Star Wars building. We knew where the Blue forces were, and I could see where the Red forces were. I couldn't believe it; I couldn't believe that reconnaissance elements could move with such obvious ease into a ground battalion's defensive positions, undetected. This is typical of U.S. forces organizing in the night in defense, not paying attention to what the enemy can do to you in terms of reconnoitering. They knew exactly where the Blue forces were before they ever launched their attacks.

After joining the Red forces then, BG (P) Leland and I motored the full length of the valley floor, literally unopposed in the darkness. Suddenly the Red forces smoke was obscuring the objective area—a dense obscuration. It effectively degraded all visual line-of-sight weapon systems.

As dawn broke, we were close to OP Brown, and the battle began. That was the first time we saw laser-activated beacons on OPFOR vehicles start lighting. The Red force started taking pretty serious hits. Just as we approached the defile, we were hit by a pair of F-18s in perfect synchronized battle. The F-18s came from the south, over-the-hill masses, and really started to take a toll on opposing force vehicles. Nevertheless, the OPFOR continued as they doctrinally should—leaving their casualties behind and driving through the defile—going on to encounter a platoon of Blue forces' tanks hunkered down in hull defilade in holes dug the previous day.

Smoke can be nerve-racking to anyone who is fixed on the ground—it certainly interrupts line-of-sight. So, the engagements I observed on the valley floor were not at extreme ranges of 3,000 to 5,000 meters; they weren't even 1,000 meters. I watched one Blue force tank take on an opposing force tank at about 300 meters. The Blue fired its main tank gun and missed. With the miss the Red force tank commander and his wingman both traversed their turrets and blew the Blue force tank right out of its hole. *You can't afford to miss!* The Blue tanker didn't boresight-align sufficiently with his MILES equipment, just as he may not have done with the main gun.

The battle was fought at extremely close range. As it raged, I saw a scout come around the left quartering flank of the attacking forces. It was enjoying a great perspective on the OPFOR as it moved through the defile because it chose to use movement and not be fixed to a piece of ground. Those who have dealt with a lot of smoke know that it is not continuous—it comes in waves and belts, and there are lines of smoke. If you can get around the edge of smoke, or get over to the next line of smoke, you can see through it.

The Blue forces fought well. They extracted a fair toll of Red forces, but the enemy was able to cross the Barstow road in great number and, in my estimation, carry off their mission.

Above, I told you the attack helicopter company was fought under the operational control of the brigade. Now you are told in FM 1-112, that under the J-series tables of organization and equipment you ought not to fight your attack forces routinely at the company level as part of a ground maneuver battalion task force. That is because you don't have any depth in the organization. You simply have helicopters; in this case, seven AH-1 Cobras and four OH-58 Kiowa scouts and crews. There is no sustainment whatsoever in that company.

This is the first point I want to make: When going to the Army of Excellence, there is reason for considering a different way to fight, one that is more than just the number of attack helicopters available. It is all the stuff that goes behind the attack helicopters—the Class III (petroleum and solid fuels) and Class V (ammunition), command and control, etc.

On the other hand, the notion that you can only fight attack helicopters at brigade level is misleading. Believe it or not, while this fight was going on, the brigade commander radioed the battalion commander and said, "I have an attack helicopter company. Do you want them?" What I feared is that the battalion commander would answer, "Yes." Why do I say that? It is a recipe for utter disaster—catastrophic failure. When you try to fight attack helicopters in such a fashion, I call that the "Hey You" war. It is that way because you have some speed and mobility, and you make up for poor planning. In my estimation, the cost will be paid in lives and machines fighting that way.

I am not an advocate for fighting an attack company in the context of a battalion task force, but if it is done, the key would be the effectiveness of the force's liaison party. I believe that fighting that way mandates that the aviation commander be represented in the battalion commander's task force TOC. He should do this 36 hours before the fight takes place, allowing time to plan the integration of Army Aviation into the battle, which is the close-in battle for this brigade. That means the role and

value of the liaison officers increase under the Army of Excellence.

Planning must be done in such great detail that, as the enemy reaches certain trigger points or phase lines, the attack company commander, according to a previous plan, leaves the FARP fully fueled and armed, and moves along reconnoitered routes into attack positions. He can then strike the enemy in the close-in battle area under that battalion commander's control. If you fight attack helicopters under the brigade commander's control in the battalion commander's backyard, you are going to lose. It violates the principle of unity of command.

The attack battalion is designed to be fought as a battalion most of the time, but there may be rare occasions, given certain situations, under METT-T (mission, enemy, troops, terrain and time) that allow you to properly coordinate and synchronize the battle by having attack companies contribute to ground battalion task forces.

The second point: The requirement for liaison officers (LOs) has increased. We have done our best to provide an adequate LO structure in the Army of Excellence, but it falls short of the optimum. Commanders are still obligated to take qualified manpower "out of hide" in order to achieve the proper level of LO representation.

I made some other important observations during the battle at the NTC. The *first* was that command relationship was confused. The brigade commander had given his battalion commander a sector of defense and then, at the point of decision, offered him an attack helicopter company. The brigade commander did not take a look at what that attack company could have done for him fighting the brigade fight. In all the time BG (P) Leland and I were riding our jeep down that wide open valley, there was no reconnaissance, no covering force. That is where Army Aviation really comes to the forefront. It was great terrain for that. We train to fight in different places all over the world where helicopters provide the same kind of advantage. Helicopters and aerial observers can do a great job for brigade commanders by letting them know how the battle is going—where the enemy is and is not.

Another observation: When the Red force broke through Blue's defense, the rear battle was ignored. There were no forces with which to respond. Many times I have read in the NTC afteraction reports, *"I called for my attack companies, and just at the time they were supposed to be in their firing positions, they report out of action. They are in the FARP getting ammunition or fuel, or they just entered crew rest. They're not there to do the fighting."*

Do you know what that does for the reputation of Army Aviation? It is not always the aviator's problem. In fact, most of the time it is the ground forces commander who doesn't know how to manage that Army Aviation resource. This, of course, is a problem. Command relationships—who gives the "overs" and who gives the "outs" is the name of this game. Let's not confuse that issue.

Still another observation: Graphics have meaning. This ties in with the principle of unity of command. We all were taught the significance of boundaries—they define turf and responsibility. The battalion commander who has been given a piece of ground stands responsible by definition. For that reason, the guy on his left or the guy on his right generally does not muck around in his backyard unless he first goes through coordination. It says that if I am going to shoot in support of an adjacent battalion commander, I am going to coordinate first before I go across a boundary. *There will be one guy with his finger on the trigger calling the shots.*

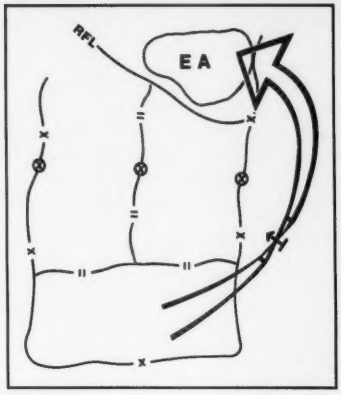


FIGURE 4

Now, we bring in the third dimension. We try to bring in aerial envelopment, perhaps a counterattack using an aviation attack battalion as the fourth maneuver battalion under the brigade commander's operational control as a counterattacking force. That is a great mission for an attack battalion; exactly what it knows how to do.

For the purposes of the counterattack, a commander may carve out an engagement area that, in his intelligence preparation of the battlefield, is where he wants to do battle with the attacking force (figure 4). Sometimes I see people with the notion that the ground battalion commander should have free fire into the engagement area, just as the aviation force working in an engagement area. That is a confused command relationship—*that is more than one person with a finger on the trigger.*

What should happen, generally speaking, is that a restricted fire line should be set up, ready to go into effect on order when the commander executes the counterattack. When commanders do that they are telling the aviation commander,

"You own that terrain. It is yours to fight." Commanders must articulate that so graphics have meaning. What I saw at NTC was a brigade commander trying to fight a battalion commander's fight when he said to the battalion commander, "I have an attack helicopter company. Can you use them?" That is a recipe for disaster.

A last observation is a philosophical issue. It concerns the three tiers of battle. General VonSinger was quoted summarizing a meeting last year up in Carlisle Barracks at the War College. It was a meeting that gathered, by invitation, the general officer leadership of the Wehrmacht. The generals were talking about their days in World War II, in comparison with the lessons to be learned in today's NATO forces context.

General VonSinger wrapped up the 2-day conference in a summary statement as he reflected about the situation he had faced in the 1930s and early 1940s. When World War II hostilities broke out the German Army had developed *two* tiers of mobility. Up to that point, armies moved at one basic speed—infantry—wheeled speeds, or infantry moving at foot speeds supported by wheeled vehicles providing logistic support. But, when the Panzer Brigade burst onto the scene with the whole art of tank warfare, whole divisions were formed with a different speed—that of the tank.

Corps and army commanders had a new perspective of how to fight the war. They now could do things with two tiers of mobility. General VonSinger feels that we are at a point in the history of warfare when we are going into *a third* tier of mobility, brought about by aviation. These three tiers—foot and wheeled speed, track speed and aviation—must not be taken out of context. I want to stress that *all three tiers contribute to the war, each in their own right.*

Understanding the three tiers helps when thinking about how to fight when dealing within a combined arms context. For example, if a commander takes forces, puts them with ground infantry forces in a coordinated attack, and obligates the tanks to move with the infantry, the tanks are not operating at the second tier of mobility. They have the potential to do so, but they are instead operating at the first tier of mobility, the speed of the slowest element within the maneuver force. The same applies to aviation.

Commanders must be careful about what they do in terms of task-organizing their forces. If commanders want to optimize the speed, the combat power, the dynamics of Army Aviation, and synchronize the battle through speed, I would urge them not to be encumbering those aviation forces with slow moving tanks or even slower moving infantry. Do so only when infantry and tanks can reinforce and support an aviation speed-oriented maneuver.

What is the speed and mobility of the battle I described at NTC? Was that a tier one, two or three? That was almost a *tier-zero*. There was no mobility over that vast desert, even though helicopters were moving from FARPs to fighting positions. If they are being fought in the close-in battle area, that is a fixed-piece, tier-one mobility fight. If it were armored mobile warfare, it might be at the second tier. Had the brigade commander based on aerial scout reports taken his attack helicopter forces and struck the leading elements of this attacking force deep, it would have been a maneuver in the third tier of mobility. If, after the tanks broke through his defense, the commander had used his attack helicopter forces to continue the battle in the rear, that too would have been an example of the third tier of mobility.

Next month watch for Part II, "Views From Aviation Commanders."

The first all-female helicopter crew for an Army medical evacuation unit of the Nebraska Army National Guard recently flew during annual training at Ft. Chaffee, AR. They are: front kneeling, SGT Linda Plock, crewchief; middle from left, SGT Laura Mruz, flight medic; WO1 Joanne Votipka, pilot in command; and back center, 1LT Jan Harrington, platoon leader. They flew a UH-1 Huey.

photo by SSG Dove Howery

COLD WEATHER THREAT

Making signals and building a parachute canopy are only part of the skills necessary to combat cold weather. The author shows how important a survival attitude is in a do-or-die situation.

Captain Dale W. Clelland
South Dakota Army National Guard
Aviation Officer Advanced Course 86-3-1

EVERY YEAR IN this country several people die or suffer serious consequences which result from exposure to cold weather. That simple fact was clearly and tragically brought to focus earlier this year by the events on Mt. Hood in Oregon. Why did so many die in this instance when just a few years ago three teenage boys lived through an almost identical situation on the same mountain?

The three boys had minimal cold weather equipment, but they knew how to use it, and they had a *strong* will to live. The boys walked away alive and well after surviving 16 days of extremely cold weather on the mountain.

I've had a long-time interest in cold weather survival and in developing my own survival skills. Much of what I know in this area can be traced to two schools which I've had the good fortune to attend: The Arctic Survival Course taught at Eielson AFB, AK, and the Army Western Region Aviation Life Support Equipment (ALSE)/ Cold Weather Survival Course offered by the Oregon Army National Guard.

Both courses teach fundamentals and take their students well beyond the point of knowing only that they need to stay warm and dry to survive. They stress the importance of knowledge and the correct survival attitude to stay alive. I gained the balance of my cold weather survival knowledge by living in areas of cold climate most of my life.

I deal here specifically with cold weather survival as it relates to aircrews. The same essential knowledge and skills apply equally to motorists, skiers, snowmobilers or anyone faced with the task of staying alive in the cold. I discuss the five primary reasons for survival

failures and the five areas called the pattern of survival. Mr. Frank Heil teaches these five reasons for failure and the pattern of survival at the Oregon school. He is an expert on survival and works full time in the survival education area. The first and without question the most important tool any cold weather survivor can have is reflected in the following quote from "Atlas Shrugged," by Ayn Rand. It was given to me at the Army Western Region ALSE/Survival School:

"Man's mind is his basic tool of survival. Life is given to him, survival is not. His body is given to him, its sustenance is not. His mind is given to him, its content is not."

To remain alive in cold weather survival situations, people must take action. But first they must know the nature and purpose of their actions. They cannot obtain food without a knowledge of food and how to get it. They cannot dig a ditch—or build a cyclotron—without a knowledge of their aim and of the means to achieve it. To remain alive, *they must think!*

Most failures to survive in cold weather situations fall into five categories or reasons. Imagine each of the five as applied to the "killers" involved—the cold, the wet and the wind. The reasons are:

• *Wrong attitude (it can't happen to me).* We can plan for the best but must always prepare for the worst.

• *Carelessness.* A lack of concern or awareness about the seriousness of the cold weather threat can kill. Check the fine points of your survival planning. Get into the details of what could happen. Ask yourself, "What if?"

• *Lack of equipment.* Determine what you'll need for your potential cold weather survival situation. Plan to have it with you always. Make sure your aircraft's survival kits are the correct type and know what is in them. Check with your ALSE specialist. Add equipment when needed. Wear the proper clothing for your environment. The best equipment or clothing can't help if it's left at home or in your locker.

• *Inability to adapt to the environment.* Adapt or die applies here. Be prepared mentally to cope with the needs of the survival situation, and physically to accomplish tasks needed for survival.

• *Fear.* This reason claims its victims early. Do not allow yourself to be overwhelmed with fear. Fear of failure can lead to "give-up itis." Never quit, never stop trying to make your situation better! Give yourself every chance to survive until help arrives.

Knowing the five reasons for failure should be supplemented with an awareness with Mr. Heil's recommended five areas that he calls the pattern of survival. Keep in mind that for aircrews forced into a survival situation of any kind, these simple steps can make the difference. Their order can be altered according to conditions, but knowing these five items greatly improves your survival chances.

• *Treat the injured and prevent further injuries.* Since aircraft accidents probably will cause injuries you should be properly trained in first aid. Ask your flight surgeon about where to get good first aid training. Check with the Red Cross people at or near your station. They often offer various first aid classes. You must be able to successfully cope with injuries in order to survive.

• *Protection from the elements.* To defend against the killers, cold, wet and wind, you may need to construct some type of shelter. While doing so, conserve your energy and remember, overheating and exhaustion will only add to survival problems.

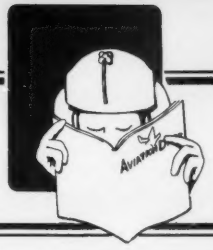
• *Fire.* The emotional comfort a fire offers cannot be underestimated. Fire allows you to warm yourself, melt snow or ice for drinking water, and cook food. Know and practice fire crafts. Starting a fire in difficult conditions is possible if you know how and what to do. Check your library. It should have books that will assist you. Your ALSE representative also may help.

• *Food and water.* Water is essential to your survival and drinking plenty of it is important. The body loses a great deal of water by expiration. Cold weather has the effect of decreasing thirst, but the continued need for water remains. Remember to purify the water you drink by boiling, or use other purification methods. Snow can be melted in the plastic water bottle (contained in the survival vest and kits) by body heat. The three boys trapped on Mt. Hood for 16 days stayed alive mainly because they had plastic bottles that they used to melt adequate amounts of drinking water. Dehydration contributes to hypothermia. Both can kill.

• *Signaling.* You must plan to be able to instantly and effectively signal for help. The main objective of any survival situation is to let someone know you're alive and where you are. There are many types of signaling devices but the best consistently are radio, mirror, flares, fire, smoke and sound. Have as many types as you can ready for immediate use. Know which to use in your particular survival situation in daylight, at dusk or dawn, or at night, and which signals searchers are most apt to see from the air or the ground. Again, check signals out at your library and talk to your ALSE folks.

The five reasons for failure and the five items of the pattern of survival are only the beginning of what you will encounter in various survival situations. The time spent furthering your knowledge and skills in this area will indeed be time well spent. The will to live is strong in all of us. But, it cannot keep us alive unless we know how to take the proper actions that will help us to survive.

VIEWS FROM READERS



Editor:

While reading the article in the September issue entitled, "Military Training Routes," I was reminded of a recent experience related to the article but which was not addressed.

During a training exercise in the Eglin AFB, FL, area it was necessary to refuel at Crestview, FL. While visiting the flight service station (FSS) at this location, the attendant advised of a pending unmanned aerial vehicle (UAV) launch from Eglin AFB.

He identified the proposed course and altitude of the UAV and further advised that a warning would be issued on all FSS frequencies 10 minutes prior to launch.

It seems appropriate for aircrews conducting VFR flight to know that flight service stations *are aware* of scheduled launches and do *provide advisories* when a UAV is wandering around the sky without eyes to see and the ability to avoid oncoming aircraft.

CW3 Rush Wicker
282d Aviation Company
Ft. Rucker, AL

Editor:

I read MG Ellis D. Parker's article, "The Challenge," in the May 1986 issue with interest. As GEN Parker (commander of the Aviation Center, Ft. Rucker, AL) stated, Army Aviation has made great strides in streamlining procedures as they relate to operator's manuals and checklists. The net result has been a noticeable improvement in our ability to provide timely mission support. I feel that these successes have been partially offset by cumbersome administrative practices outlined in recent DA publications.

An example of this is the requirement to log the names of all crewmembers on the dash 12 for each flight, even when the crew does not change. Because of this I can conceivably spend 20 to 25 minutes performing this redundant task. Another example is the new requirement to write up, and sign off all pre- and post-flight inspections. My question is this. Why must the crewmember "certify in writing" that he or she has performed this task when these tasks are already required by existing policy? Perhaps the rationale for this requirement is to ensure aircraft are pre-flighted and post-flighted. If so, I expect we will soon be signing off fuel samples, before landing checks, and other procedures that require standardization emphasis.

Why am I writing this? Because I feel our effort to streamline publications should not ignore changes that tend to creep into publications that have been "fixed." Careful screening of changes would weed out procedures that are inefficient, or that would impede our ability to provide timely mission support.

Prior to sending this letter I submitted 2028s to the appropriate agency.

CW2 Pete Linn
HHC 1st IDF
APO New York

Editor:

I'd like to take this opportunity to thank CPT Robert C. McGowan for his letter in the May 1986 edition of *Aviation Digest* concerning "new" lieutenants and their new job responsibilities after flight school.

CPT McGowan stated in his letter: "If you wanted to be just a pilot, you joined the wrong service. Flying probably will be but a small part of your duties. You are a combat arms officer."

Problems I encountered as a second lieutenant were trying to maintain proficiency in my assigned aircraft and also performing duties as a section leader and motor officer. Currently, I hold the position of company training officer.

Though each encounter was challenging, performing the duties and accomplishing the mission was never a doubt in my mind.

Thank you sir for the reality.

1LT Benjamin F. Thomas Jr.
200th Aviation Company
14th CABN
Ft. Still, OK

Editor:

Please send me the articles you listed on Korea and Team Spirit 84. I am now stationed in Korea and would like to read these articles.

CPT B.H. Aldstadt
377th Medical Co. (AA)

Editor's Note: The *Aviation Digest* carried eight Korea and Team Spirit articles. They are available upon request (see address below).

Articles from the ***Aviation Digest*** *requested in these letters have been mailed. Readers can obtain copies of material printed in any issue by writing to: Editor,* ***U.S. Army Aviation Digest****, P.O. Box 699, Ft. Rucker, AL 36362-5044.*

GOAL – $2,500,000
NOVEMBER 1986 – $2,100,000 cash and pledges

Army Aviation MUSEUM

This is a series about the Army Aviation Museum Foundation fund drive. Currently, plans call for building a modern complex to house your Army Aviation Museum. Since last month additional donations have been received. However, we still have a ways to go, as the barometer above shows. If you would like to help "build" the Army Aviation Museum's new home, you are invited to send a tax deductible contribution to: The Army Aviation Museum Foundation, Box 610, Ft. Rucker, AL 36362-5000. If you desire additional information call Mr. Ed Brown at (205) 598-2508.

A Look At What's In Your Museum

The AH-1 HueyCobra, a descendant of the UH-1 Huey (Iroquois) family, is a combat attack helicopter. The prototype of the AH-1G was first flown on 7 September 1965. The Army placed an initial contract order with Bell Helicopter Company in 1966 for 110 aircraft. Deliveries began in 1967. The first Cobra was the model equipped with a 1,100 hp T53 engine. It entered combat service in Vietnam with the 1st Aviation Brigade in September 1967. The AH-1 proved so successful that an additional 868 were ordered in April 1968. Other versions of the Cobra include the AH-1Q (Tow Cobra), AH-1R, AH-1S and AH-1T, each with more power and modified equipment.

Cobra armament typically may include a 6-barrel 7.62 minigun with 4,000 rounds and a 40 mm grenade launcher with 300 rounds. It carries 4 stores pylons for 76 rockets (2.75 inch) or 8 wire-guided missiles, or 48 rockets and 2 miniguns. The Cobra on display was the second manufactured. It was transferred to the Army Aviation Museum in November 1970 from the Army Materiel Command.

Bell AH-1G HueyCobra

U.S. ARMY SAFETY CENTER

It Can Get You in Trouble

Operating aircraft in cold climates presents unusual problems that require aviators to react posthastily. The following is a typical example of what can happen when an aviator becomes disoriented during helicopter flight in a snowstorm.

A UH-1 HUEY crew was given a mission to fly its aircraft to a field site, where it would be used as a mobile tactical operations center during a training exercise. The pilot was given en route weather of 1,000 feet ceiling and 4,000 meters visibility. This forecast was accurate until the aircraft entered the exercise area.

At an en route checkpoint, contact was made for flight following and a weather update for the field site. An air traffic control tower operator located at the checkpoint gave the crew a weather update of 500 feet ceiling and visibility of 1,200 meters with scattered snowshowers.

Arriving at the field site, the crew orbited three or four times to make visual contact with the tactical operations center. Radio contact was made and the landing site and operations center identified.

The copilot, who was at the controls, started his approach to the designated landing area. The weather was 400 feet ceiling, partial obscuration, snow, fog and estimated winds of 210 degrees at 8 to 10 knots. The copilot terminated the approach at a high hover and repositioned a short distance to park the aircraft. The high hover was maintained for 1 to 2 minutes to blow away newly fallen snow on top of crusted-over snow of 1½ to 2 feet covering the landing site.

The copilot landed the Huey on the crusted snow. The rear skids broke through the snow, resulting in a nose-high, tail-low attitude. The crewchief told the pilots the tail was 2 to 3 feet above the snow. The pilots decided to reposition the helicopter to another spot to level it. The pilot in command (PIC) told the copilot he had good visual reference on a grassy spot visible through his right side window.

The PIC and copilot transferred the controls. The pilot in command picked the aircraft up to a 3-foot hover to reposition to the spot he was using as a

reference. The copilot told the PIC he was drifting left and to stop the left drift because the aircraft was moving toward trees that protruded into the landing area. The pilot responded affirmatively to the copilot.

The copilot looked back toward the tree line and saw that the helicopter was still drifting to the left. The copilot then saw small branches flying past the helicopter. He told the PIC the tail rotor had hit trees and to set the aircraft down. The UH-1 hit the snow-covered ground with the left forward skid and rolled over onto its left side.

Why does the Army usually have two accidents identical to this one every year? Because aviators get into trouble with the snow by not following procedures spelled out in technical, training and operator's manuals.

In this case, the copilot used the correct snow operation techniques in FM 1-202, "Environmental Flight," when he first landed the aircraft. When the pilots decided to move the aircraft to a more level area, the PIC took over because he could see (through his right side door window) a level area with some grass showing through the snow.

The PIC did not follow the snow operation procedure in FM 1-202. Instead of picking the helicopter up to a high hover (5 to 8 feet) and then hover-taxiing at a faster than normal taxi speed to move in front of and above the cloud of snow created by the rotorwash (as stipulated in paragraph 1-15 of FM 1-202) the PIC picked the aircraft up to only a 3-foot hover. The PIC's only visual reference was out his right window. This reference point and any other visual references he normally would have had were lost due to the snow cloud caused by the rotorwash.

Instead of setting the aircraft down or making the appropriate snow environment takeoff when he lost all visual references, the PIC continued to hover at 3 feet in an attempt to regain the reference spot out his right side window. This attempt to regain visual reference resulted in the PIC becoming disoriented.

The PIC thought he would be able to maintain his visual reference for the short distance needed to reposition the aircraft. Then, when he lost his reference, he thought he would be able to regain it. This didn't happen. The aircraft continued to drift left until it hit the trees.

When the copilot told the PIC to stop the left drift, the PIC added only a slight amount of forward cyclic. After the tail rotor strike, the PIC was still disoriented when he lowered the collective to set the aircraft down. The distance between the tail rotor strike and the location of the crash was 235 feet.

FM 1-202 goes into detail about taking off from and landing to snow-covered areas. It also contains excellent information on cold weather flying. If you will be operating an aircraft in areas where there is snow, be sure you read this FM. Among other things, it tells you how to determine the condition of the snow, how to improve depth perception, and the effects of rotor and propeller wash on snow. You also should be familiar with appropriate training and operator's manuals.

Commanders of units operating in cold weather areas are responsible for seeing that their aviators are thoroughly trained in the correct techniques for snow takeoffs and landings. Refresher training should already have been done this year. If it hasn't been, maybe it's not too late. Do it now!

PEARL'S

Personal Equipment And Rescue/survival Lowdown

Flying of Army Aircraft Without a Survival Radio

We have become aware that some Army units are permitting flight of Army aircraft without having the minimum required of at least one operational survival radio onboard. This is against the Army policy and does not comply with current regulations.

Should your unit be one of the above and you have been unable to obtain required survival radios, please contact this office; we will assist you in obtaining the required survival radios. Point of contact in the ALSE PM office is Mr. Harlyn Hubbs, AUTOVON 693-3215/3817 or Commercial 314-263-3215.

The All Important Ears

Know the ear—this is where we have all those delicate mechanisms that keep us well balanced. If we have the slightest suspicion that our ears are not up to par, we should not fly. Taking off with a known physical discrepancy applies to us as well as to our aircraft.

Trioxane Fuel is Harmful if Swallowed

Whenever trioxane fuel is in use, be extra careful how it is handled. Should you get some on your hands, wash them as soon as possible. Remember that trioxane is toxic and will contaminate food items. If possible wear expendable surgeon thin rubber gloves (these can often be secured from your local dispensary). PEARL strongly recommends aircrew personnel carry three to four pairs on all flights since most flights could result in a survival situation.

Army Western Region ALSE/Survival School

Effective 1 October 1986, the Army Western Region Aviation Life Support Equipment (ALSE)/Survival School is established as a *sixth* U.S. Army area school collocated with the 6229th U.S. Army Reserve Forces School (USARFS), Vancouver Barracks, WA. The mission of the school is to provide ALSE training for ALSE technicians and officers as well as survival training for aircrew personnel.

The FY 87 course schedule is as follows:

DATES	TYPE COURSE	COURSE
7–8 Oct 86	Overwater Survival	8701W
16–21 Nov 86	Basic Land Survival	87025B
18–19 Nov 86	Overwater Survival	8703W
30 Nov–20 Dec 86	ALSE ASI2Q Course	8704AQ
11–16 Jan 87	Cold Weather Survival	8705SC
25–30 Jan 87	Cold Weather Survival	8706SC
1–6 Feb 87	Cold Weather Survival	8707SC
8–13 Feb 87	Cold Weather Survival	8708SC
24–25 Mar 87	Overwater Survival	8709W
5–10 Apr 87	Basic Land Survival	8710SB
12–17 Apr 87	Basic Land Survival	87115SB
14-15 Apr 87	Overwater Survival	8712W
19–24 Apr 87	Basic Land Survival	8713SB
3–8 May 87	Basic Land Survival	8714SB
10–15 May 87	Basic Land Survival	8715SB
12–13 May 87	Overwater Survival	8716W
4–5 Aug 87	Overwater Survival	8717W
15–16 Sep 87	Overwater Survival	8718W

Quota control and course enrollment are handled telephonically. No paperwork is required. To schedule courses or for additional information contact the 6229th USARFS at Commercial 503-285-5577 or 206-694-8761. If commercial phone is not available, you may call Sixth U.S. Army Aviation Division, AUTOVON 586-4133/3883.

Dawna Salazar
photo by
Benjamin Martel

Can you find four errors in this photograph?

Answers on page 18

I Learned About ALSE From That

One of the better ways to learn about Aviation life support equipment (ALSE) and ongoing actions is not only through your ALSE training and the PEARL articles in the *Aviation Digest*, but also an important source is to get together and "Hangar Fly"; sit down, talk and discuss ALSE—what are some of your ALSE needs? Can we help you? Unless you let us know what you have observed or what some of your problems are, there is little we can do for you and surely we want to help you with your ALSE problems. Make PEARL part of your concern. "She" is here to help you.

AR 95-17, Para 2-6, Protective Clothing and Equipment

Paragraph 2-6, AR 95-17, is being updated by changing the last sentence of subparagraph b, to read: "The flight helmet requirement does not apply to C-12, T-42 and U-21 aircraft used for passenger service. Flight helmets can be worn in these aircraft when desired."

AR 95-17, Para 2-9, Survival Equipment

Paragraph 2-9, subparagraph b, is being changed to read: "Each aircraft crewmember will be equipped with an operational standard Army survival radio." *Note:* Paragraph 2-9, survival equipment, will remain as is except for the above change.

Standardization of Flight Uniform and Aviator Jacket

To clarify any misunderstanding regarding the flight uniform, the following list includes the only items of flight clothing currently authorized for issue:

ITEM	CLIMATIC ZONES
COVERALL, FLYERS, LTWT, SAGE GREEN	ALL
JACKET, COLD WEATHER, CVC/AIRCREWMAN, OD	ALL
JACKET, FLYERS, LTWT, OD	ALL
HOOD, EXTREME COLD, SAGE GREEN, CWU-45/P	V-VII
TROUSERS, EXTREME COLD, SAGE GREEN, CWU-17/P	V-VII

• The two-piece Nomex camouflage uniform is a developmental item and is currently in the design phase.

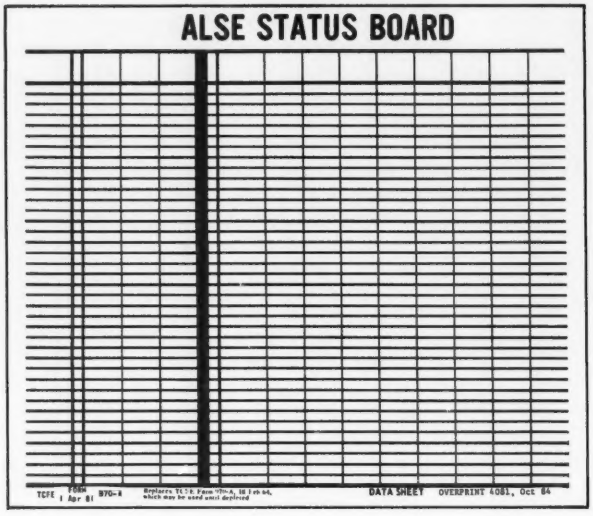
• *The old two-piece Nomex aviator/tanker uniform is still authorized for combat vehicle crew personnel only.*

SHIRT, HOT WEATHER LIN NO. T030002
TROUSERS, HOT WEATHER LIN NO. X35980
DALO-TST point of contact is Ms. Shirley Bryant, AUTOVON 224-7344.

Army First Aid Kits

First aid kits for Army aircraft are authorized in accordance with common table of allowances (CTA) 8-100. Do you have what you are authorized? Review

CTA 8-100 and use as authority to secure the needed kits. Your survival could depend on having them aboard. Courtesy of PEARL.



ALSE Status Board

PEARL has received a number of inquiries as to the availability of an ALSE status board that could be used for listing all ALSE for the purpose of identifying the status of each item. Unfortunately, we have had to make one locally at each ALSE office. We made it by adapting TCFE Form 970-A; a sample (above) can be found in FM 1-508-1, "Maintaining Aviation Life Support Equipment (ALSE): Maintenance Program." *Note:* Be sure to leave adequate space between each item to prevent overcrowding. Should you come up with a better version, please send a copy to PEARL and we will attempt to get it printed and into the appropriate ALSE technical manual.

Breathing in Flight

Breathing, or the exchange of air between your lungs and the atmosphere, takes care of two body requirements:

- Gets rid of carbon dioxide.
- Supplies oxygen.

Flying under most circumstances may be classified as light activity. Hence, the rate of CO_2 production and the related rate and depth of breathing remain near the resting levels. However, something new is encountered in flight. The environment changes with the altitude. Because of the pull of gravity on the air molecules, a pressure gradient exists between the earth's surface and the upper atmosphere. As a result, most of the air molecules are concentrated near the surface—our normal environment—and fewer air molecules are found at higher altitudes or, in other words, the higher you fly—the less air in the sky. This fact allows your altimeter to indicate the plane's altitude in flight. But it also means there is less oxygen (per unit volume) in every breath you take.

The solution is the use of supplemental oxygen to increase the percentage of oxygen in the small quantity of air molecules at the higher altitudes. Such action not only supplies the normal requirement of oxygen for your body, but it also maintains the normal rate of carbon dioxide excretion. It prevents both hypoxia (due to low oxygen content of inspired air) and hyperventilation (due to overbreathing with excessive elimination of carbon dioxide).

Hypoxia and hyperventilation are difficult to detect since they affect the functioning of the brain. They are especially dangerous in their effect on judgment. You may develop euphoria (a feeling that everything is fine). Other symptoms may be headache, dizziness or nausea. Night vision is particularly vulnerable when flying above the 5,000-foot level.

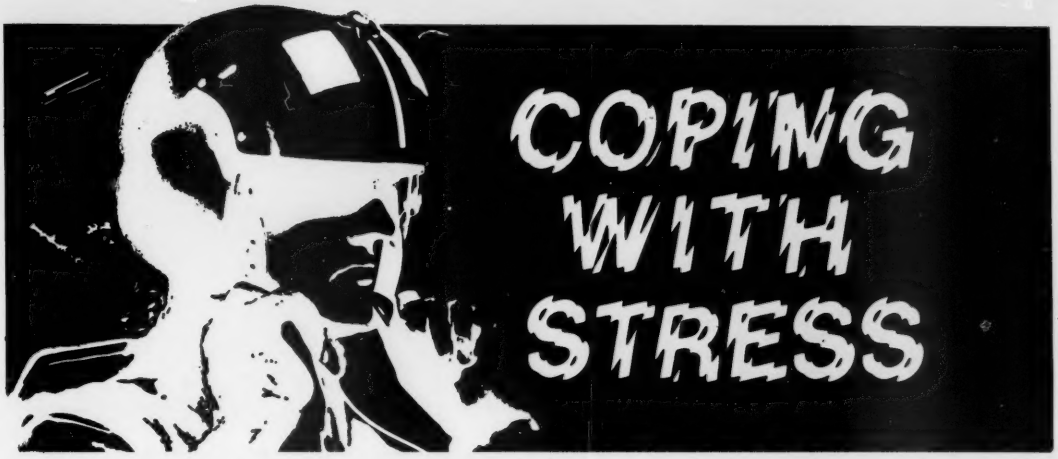
Plan ahead and play it safe. Use supplemental oxygen starting at the 5,000-foot altitude at night and at the 10,000-foot altitude during daylight.

Become familiar with *oxygen equipment* and its use in flight. Courtesy of the Civil Aeromedical Institute for Aviation Medical Education.

Answers to Quiz on Page 17.

1. The helmet is not fitted properly and is tilted too far back.
2. Her hair should be tucked underneath the flight suit in the back.
3. The chin strap is rolled over.
4. The vest is too large.

If you have a question about personal equipment or rescue/survival gear, write PEARL, AMC Project Officer, ATTN: AMCPO-ALSE, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798 or call AUTOVON 693-3817 or Commercial 314-263-3817.



Captain James J. Picano, Ph.D.
Community Mental Health Service
U.S. Army Aeromedical Center
Fort Rucker, AL

THE CONCEPT OF stress has received widespread attention in recent years. The dangers of excessive stress in our lives are well-documented as scientific research continues to link it with physical illnesses, decrements in job performance, and social and psychological maladjustment. Much of the popular literature is devoted to teaching us innovative ways of managing, preventing and even eliminating stress from our lives.

In spite of this quickly growing body of knowledge about stress, there exists little agreement within the scientific community about exactly what stress is and how it affects us. But, what is becoming clearer is that stress, even in high degrees, does not necessarily have adverse effects. Certainly, all stress should not be eliminated from our lives, for it is this force which motivates us, challenges us and stimulates our continued growth. Rather, it appears that the ways in which we cope with life stress has more to do with its effects on our health than does the mere presence of stress alone. Healthy stress-coping strategies can enhance and enrich our lives, whereas poor stress coping can lead to a life lacking in fulfillment and filled with physical and emotional discomfort.

More importantly, poor stress coping in aviation can have disastrous consequences. A recent study by Dr. Robert Alkov, a psychologist at the U.S. Naval Safety Center in Norfolk, VA, shows that poor stress coping is linked directly to aircraft mishaps. Dr. Alkov and his associates studied the life stress and poor stress-coping symptoms of more than 700 naval aviators who had been involved in major mishaps over a 4-year period (1978 to 1982). These researchers compared the psychological functioning of aircrewmembers whose accidents were judged to have resulted from pilot error to those pilots whose accidents did not result from pilot error. They found that pilots of the "pilot error" group were significantly more likely than their counterparts to have:

- Experienced a recent personality change,
- Been having difficulty with their superiors,
- Been having difficulty in interpersonal relationships,
- Marital problems.

All of the above are symptoms of poor stress coping.

Dr. Alkov also found that the pilots of the pilot error group were also significantly more likely than their counterparts to be contemplating career changes and engagements to marry. There appears to be a small margin of safety for poor stress-coping strategies in aviation; therefore, it is the duty of individual aviators and aviation commanders to learn about the effects of stress, the early warning signs of poor stress coping, and effective and adaptive ways of managing and coping with stress.

Stress is an elusive concept, a force much like gravity in that we infer its presence by observing its effects. Much of our current understanding about the effects of stress on the body has evolved from the

pioneering work of Dr. Hans Selye. He defines stress as the nonspecific response of the body to external demands placed upon it (stressors). Dr. Selye outlined a "general adaptation syndrome" based upon the body's physiological response to stress, which occurs in three stages:

- The *alarm* stage signals a defensive reaction on the part of the body to a perceived threat. This reaction is primarily mediated through the endocrine system with an increase in adrenal cortical secretions. Blood pressure and body temperature also show a characteristic rise initially. This adrenal response continues through the next stage.
- The *resistance* stage is marked by the body's effort to adapt to the stressful situation. It is identified by adrenal enlargement, shrinkage of the thymus gland and its associated reduction in lymphocytes, and gastrointestinal ulceration. Under conditions of prolonged or severe stress, the body's ability to adapt becomes diminished and the body begins to break down.
- In the *exhausted* stage, the illnesses associated with excessive stress and poor stress coping, such as gastrointestinal ulcers, hypertension and arthritis, become manifested.

The stressors that provoke the above outlined response pattern are not always noxious environmental events. Even relatively positive life events such as getting married, promoted or graduating from flight school can trigger the stress response described above to some degree. In short, any event that demands change can be considered a stressor.

Obviously, life changes do not always lead to physical and emotional breakdown. In fact, most people handle even severe stressors quite effectively with few adverse effects. But, stressors are cumulative and if not dealt with effectively, can cause significant distress. Researchers have only just begun to study how the ways in which we cope with stress, that is our stress-coping styles, mediate this physiological response pattern to positively influence our health.

Effective stress-coping strategies are—to borrow an analogy from Dr. George Vaillant of Dartmouth University, an eminent researcher in this area—those processes by which "an oyster confronted with a grain of sand, creates a pearl." Such processes may be under our conscious control, like soliciting advice from a friend or professional in times of crisis. Or, stress-coping mechanisms may operate outside of our awareness like drinking heavily to dampen the emotional pain associated with the death of a loved one.

Some of the stress-coping processes that have been found to more favorably impact on physical and psychological health are analyzing problem situations, using humor, and talking over fears and worries with others. Avoidance mechanisms, like excessive drinking, smoking or eating during times of stress, might help to reduce some of the immediate tension, but do not promote health over the long-term.

Surprisingly, we know relatively little about the ways in which aviators cope with the excessive stresses of military aviation, partly because we have been reluctant to study these processes (fearing that the discussion of stress in aviation might itself engender more stress), and partly because stress and difficulty coping with stress are topics that most pilots do not readily discuss. Instead, we hear about "compartmentalizing," that amazing process that allows a pilot to fly while caught in the wake of a failing marriage or death of a close comrade. Compartmentalization works fine in the short run, but conflicts that are suppressed eventually will surface and push for resolution. Ultimately, it is the way in which these conflicts are handled which determines future well-being.

Following this article is a survey of the ways in which aviators cope with stress. Please take the time to fill it out and mail it. You will not only be contributing to our understanding of this process, but you also will be learning about the ways you handle problems in your life. The results of this survey will be published in a future issue of the *Aviation Digest* with appropriate comments. Meanwhile, there are some concrete things that you can do to enhance your ability to cope with stress:

- Set realistic and attainable long-term goals; this helps to minimize the impact of life changes.
- Exercise regularly and pay attention to proper nutrition to increase the body's resistance to stress-related illness.
- Cut down on stimulants like caffeine and nicotine.
- Avoid excessive use of alcohol.
- Take leave and learn to relax and enjoy the time off from work.
- Most importantly, take time to identify the major sources of stress in your life, and take positive steps to deal with them.

If you notice the warning signs of poor stress coping in yourself or your fellow aviators—such as fatigue, frequent headaches, irritability, difficulty concentrating, trouble getting along with others, heavy drinking, or recklessness—a visit to the flight surgeon is recommended. Remember, aviation is a field that is very unforgiving of poor stress coping. Take measures to ensure that stress does not continue to contribute to the cause of aircraft accidents.

Thank you all for taking time to fill the following survey and mailing it to us at the (franked) preprinted address on the survey.

Commanders, please make as many copies as you need of the attached survey to be filled out by your people.

Stress-Coping Questionnaire

Please be sure to provide the following additional information, which will be helpful in our analyses of the survey. If you are not an aviator and would like to complete the survey, please fill out the questions below which apply and list your current job title under the section reserved for comments.

1. **What is your sex? (circle one)** **M** **F**
2. **What is your age?** _____
3. **What is your rank?** _____
4. **How many years of education do you have?** _____
5. **How much total time in service do you have?** _____
6. **How much time in aviation service do you have?** _____
7. **How many flight hours do you have?** _____
8. **Which aircraft(s) are you rated in?** _____
9. **Which aircraft do you predominately fly?** _____
10. **Number of aircraft mishaps: Class A** ___ **B** ___ **C** ___ **D** ___ **E** ___
11. **Circle your highest aviation rating:** **SP** **P** **PIC** **IP** **SIP**

COMMENTS _____

We are interested in how people respond when they confront difficult or stressful events in their lives. There are lots of ways to attempt to deal with stress. This questionnaire asks you to indicate what *you* generally do and feel, when *you* experience stressful events. Obviously, different events bring out somewhat different responses, but think about what you *usually* do when you are under a lot of stress.

Then respond to each of the following items by blackening one number on your answer sheet for each, using the response choices listed just below. Please try to respond to each item *separately in your mind from each other item.* Choose your answers thoughtfully, and make your answers as true *FOR YOU* as you can. Please answer *every* item. There are no "right" or "wrong" answers, so choose the most accurate answer for YOU – not what you think "most people" would say or do. Indicate what YOU usually do when YOU experience a stressful event.

1 = I usually *don't* do this *at all*

2 = I usually do this a *little bit*

3 = I usually do this a *medium amount*

4 = I usually do this a *lot*

1.	**I try to grow as a person as a result of the experience.**	**1**	**2**	**3**	**4**	**12.**	**I get used to the idea that it happened.**	**1**	**2**	**3**	**4**
2.	**I turn to work or other substitute activities to take my mind off things.**	**1**	**2**	**3**	**4**	**13.**	**I hold myself back from doing anything until I can do something effective.**	**1**	**2**	**3**	**4**
3.	**I force myself to wait for the right time to do something.**	**1**	**2**	**3**	**4**	**14.**	**I talk to someone to find out more about the situation.**	**1**	**2**	**3**	**4**
4.	**I get upset and let my emotions out.**	**1**	**2**	**3**	**4**	**15.**	**I put aside other activities in order to concentrate on this.**	**1**	**2**	**3**	**4**
5.	**I try to get advice from someone about what to do.**	**1**	**2**	**3**	**4**	**16.**	**I daydream about things other than this.**	**1**	**2**	**3**	**4**
6.	**I concentrate my efforts on doing something about it.**	**1**	**2**	**3**	**4**	**17.**	**I get upset, and am really aware of it.**	**1**	**2**	**3**	**4**
7.	**I say to myself "this isn't real."**	**1**	**2**	**3**	**4**	**18.**	**I don't let myself do anything until I'm sure it will be useful.**	**1**	**2**	**3**	**4**
8.	**I make sure not to make matters worse by acting too soon.**	**1**	**2**	**3**	**4**	**19.**	**I seek God's help.**	**1**	**2**	**3**	**4**
9.	**I put trust in God.**	**1**	**2**	**3**	**4**	**20.**	**I make a plan of action.**	**1**	**2**	**3**	**4**
10.	**I admit to myself that I can't deal with it, and quit trying.**	**1**	**2**	**3**	**4**	**21.**	**I accept that this has happened and that it can't be changed.**	**1**	**2**	**3**	**4**
11.	**I discuss my feelings with someone..**	**1**	**2**	**3**	**4**	**22.**	**I try to get emotional support from friends or relatives.**	**1**	**2**	**3**	**4**

23. I restrain myself from doing anything too quickly.	1	2	3	4
24. I just give up trying to reach my goal.	1	2	3	4
25. I take additional action to try to get rid of the problem.	1	2	3	4
26. I refuse to believe that it has happened.	1	2	3	4
27. I let my feelings out.	1	2	3	4
28. I hold off doing anything about it until the situation permits.	1	2	3	4
29. I try to see it in a different light, to make it seem more positive.	1	2	3	4
30. I talk to someone who could do something concrete about the problem.	1	2	3	4
31. I sleep more than usual.	1	2	3	4
32. I try to come up with a strategy about what to do.	1	2	3	4
33. I eat more than usual.	1	2	3	4
34. I focus on dealing with this problem, and if necessary let other things slide a little.	1	2	3	4
35. I get sympathy and understanding from someone.	1	2	3	4
36. I drink alcohol or take drugs, in order to think about it less.	1	2	3	4
37. I give up the attempt to get what I want.	1	2	3	4
38. I smoke more than usual.	1	2	3	4
39. I look for something good in what is happening.	1	2	3	4
40. I think about how I might best handle the problem.	1	2	3	4
41. I pretend that it hasn't really happened.	1	2	3	4
42. I take unnecessary risks.	1	2	3	4
43. I try hard to prevent other things from interfering with my efforts at dealing with this.	1	2	3	4
44. I go to movies or watch TV, to think about it less.	1	2	3	4
45. I accept the reality of the fact that it happened.	1	2	3	4
46. I ask people who have had similar experiences what they did.	1	2	3	4
47. I feel a lot of emotional distress, and I find myself expressing those feelings a lot.	1	2	3	4
48. I have a temper outburst, and lose control.	1	2	3	4
49. I take direct action to get around the problem.	1	2	3	4
50. I try to find comfort in my religion.	1	2	3	4
51. I reduce the amount of effort I'm putting into solving the problem.	1	2	3	4
52. I talk to someone about how I feel.	1	2	3	4
53. I learn to live with it.	1	2	3	4
54. I don't allow myself to get distracted by other thoughts or activities.	1	2	3	4
55. I jog or exercise more than usual.	1	2	3	4
56. I think hard about what steps to take.	1	2	3	4
57. I act as though it hasn't even happened.	1	2	3	4
58. I do what has to be done, one step at a time.	1	2	3	4
59. I learn something from the experience.	1	2	3	4
60. I pray more than usual.	1	2	3	4
61. I blame others.	1	2	3	4

fold

Commander
U.S. Army Aeromedical Center
ATTN: HSXY-CMH
Fort Rucker, AL 36362-5333

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 12062 WASHINGTON, D.C.

POSTAGE WILL BE PAID BY DEPARTMENT OF THE ARMY

Community Mental Health Services
ATTN: Captain Picano
Lyster Army Hospital
Fort Rucker, AL 36362-5333

fold

Exploiting Opportunities

Major (P) Charles Cook
Major (P) C. B. Wilson
Office, Deputy Chief of Staff for
Research, Development and Acquisition
Headquarters, Department of the Army

ARMY AVIATION as a branch and a combined arms force is making significant contributions as our Army explores all the options open to it as a result of the air-land battle operational concept. Although low intensity conflicts (LIC) will continue to be our most probable scenario of employment, we must continue to be prepared for more costly and more technical mid- to high-intensity conflicts in Europe, the Mideast or Southwest Asia.

The situation that Army Aviation forces will encounter in these high tech/high tac areas can best be summed up as one in which:

- Major defensive efforts are centered (task organized) on the most dangerous ground avenues of approach.
- "Risk" is accepted on the flanks and in defense of our rear areas.

This situation describes a traditional battlefield in which we have always been prepared to fight outnumbered. But, it also describes a battlefield that leaves major gaps for attack helicopters, air assault and special operations forces to exploit.

In this new arena, Army Aviation forces (Soviet Union as well as United States) will exploit a new layer to the modern battlefield – one known to the tactical Army aviator as terrain flight altitudes. This operational envelope exploits the value of terrain masking, background clutter and the helicopter's ability to bypass most task organized ground resistance that usually will include the majority of our primary forward area air defense (FAAD) force.

We have a number of challenges and opportunities to address as a result of the helicopter's impact on the battlefield. Among these are:

- Maximize the inherent combat potential of our new aviation force structure, our new aviation systems and the air-land battle operational concept.
- Integrate Army Aviation forces with ground, air and air defense forces.
- Avoid fratricide risks with FAAD and other friendly ground forces.
- Continue to support the main battle area, but also exploit deep attack opportunities.
- Defend rear areas and flanks from Soviet army aviation exploitation.

As we seek to solve these problem areas and continue to address our laundry list of mission area analysis deficiencies, Army Aviation requirements will center primarily around our literal ability to see the battlefield in real-time terms; acquire and positively identify our terrain flying aircraft; track them, vector them and assess tactical priorities; orchestrate countermeasures against Soviet style army aviation and air defense forces as we maneuver our combined arms aviation task forces against the threat. Note the similarities of our maneuver requirements with those of the new FAAD system. *This is fertile ground for joint exploitation!*

As these needs are reviewed it should become evident that our newest branch must reassess its number one mission area deficiency, currently stated as "the lack of an air-to-air [counterair] and air defense suppression capability." There are compelling reasons for these capabilities; but, there are even more compelling reasons for something else. Army Aviation's greatest deficiency today, it would appear to the authors, is the lack of an effective air-to-ground and air-to-air command, control, communications and intelligence (C^3I) system and electronic warfare (EW) capability. These two subject areas are essential for those of us in Army Aviation to understand and incorporate rapidly into the Army Aviation force structure. Remember that neither the Battle of Britain nor of the Bekaa Valley were so much systems' battles as they were C^3I/EW battles.

If we are to really provide responsive, combat effective contributions to the air-land battle scenarios in any mid- to high-intensity conflict of the future, we should consider the lack of an effective C^3I/EW capability as our number one aviation mission area deficiency today.

Terminating Flying Status of Nonrated Aviation Personnel

Sergeant First Class William A. Kruczek
Directorate of Evaluation and Standardization
U.S. Army Aviation Center
Fort Rucker, AL

In May 1986, the DES Report to the Field entitled "Management of Enlisted Flying Status" identifies problem areas that repeatedly surface during DES Aviation Standardization and Training Seminars and Department of the Army (DA) Evaluations. These areas were related to flying status assignment and pay for performance of flying duties. This month's discussion expounds another gray area: "Terminating flying status of nonrated Army Aviation personnel."

As discussed in the previous article, it is the military occupational specialty 93P (Flight Operations) sergeant's responsibility to be thoroughly familiar with Army Regulation 600-106, "Flying Status for Nonrated Army Aviation Personnel." As the commander's subject matter expert on all matters dealing with flight status and flight pay, the flight operations sergeant must ensure adherence to AR 600-106.

The requirement to give advance notice to remove enlisted crewmembers from flying status often causes problems. Paragraph 14a, AR 600-106, specifically states that enlisted crewmembers will be notified at least 120 days prior to being involuntarily removed from flying status when it occurs through no fault of their own.* The intent of this requirement is: First, to provide the enlisted crewmember a transition period for adjusting to the loss of flight pay. Second, to recognize as an integral part of the crew the crewmember who is vital to the operation of the aircraft. Last, to eliminate the practice of using flying status as a reward or punishment.

Three exceptions to the requirement for 120-day advance notice are: *First*, the service member voluntarily waives the 120-day notice in writing in order to accept the results of a favorable personnel action. Examples of this would be if the soldier was accepted to officer candidate school, or a service school that was requested; also when the soldier accepts a warrant or a commission, or is promoted and no longer fills a flying slot.

The *second* instance that does not require the 120-day notice is when the soldier is placed on flying status for a known period of time that is less than 120 days. An example of this would be when an individual is placed on flying status to participate in a field training exercise or command post exercise and the flight orders specify the duration of flight status by including both the effective date and termination date.

The *third* exception, authorized by Military Personnel Center (MILPERCEN) on a case-by-case basis, is used when a soldier receives a short-suspense permanent change of station (PCS) that does not allow enough time for the 120-day advance notification. This must result through no fault of the unit or individual. The unit cuts/issues orders removing the soldier from flying status and also submits a by-name

*This requirement applies only to individuals on crewmember flying status; *there is no requisite for the 120-day advance notice for personnel on noncrewmember status.*

request for exception to MILPERCEN, ATTN: DAPC-PLP, 200 Stovall Street, Alexandria, VA 22332.

The request must contain the name, grade, military occupational specialty and social security number of the soldier; the reason for removal (must contain the enlisted personnel management office control and line number if by DA assignment instructions); the proposed date of removal; the reason why 120-day advance notice was not granted; a copy of the written notice of involuntary removal and effective date of removal; and, finally, a copy of the soldier's DA Form 759 (Individual Flight Record and Flight Certificate—Army). NOTE: There is no need for advance notification if removal from flying status is the result of being absent without leave, confinement, relief for cause or medical unfitness (to include failure to maintain a current medical examination).

Unit commanders must ensure that flying status has been terminated on all enlisted soldiers prior to their departures from the units; if 120-day advance notice was not possible due to a short-suspense PCS, the individual's flying status orders must still be terminated, and a MILPERCEN exception requested. Only MILPERCEN can grant exceptions that authorize pay for soldiers when they are no longer filling a flying slot and that authority is not delegated to local commanders.

This DES Report provides a quick overview of the 120-day advance notification requirement as prescribed by AR 600-106. To reiterate, it is the responsibility of operations sergeants to ensure that they are thoroughly familiar with all aspects of managing flight status. They have a responsibility and a duty to both the commander and the soldier to ensure that enlisted crewmembers receive all flight pay to which they are entitled.

Questions or requests for assistance concerning flight status may be made by calling AUTOVON 558-4691/6571; FTS 205-255-4691/6571; or by writing Commander, Aviation Center, ATTN: ATZQ-ESE, Ft. Rucker, AL 36362-5000.

DES welcomes your inquiries and requests to focus attention on an area of major importance. Write to us at: Commander, U.S. Army Aviation Center, ATTN: ATZQ-ES, Ft. Rucker, AL 36362-5000; or call us at AUTOVON 558-3504, FTS 533-3504 or Commercial 205-255-3504. After duty hours call Ft. Rucker Hotline, AUTOVON 558-6487 or 205-255-6487 and leave a message.

U.S. Army Class A Aviation Flight Mishaps

	Number	Flying Hours	Rate	Fatalities	Total Cost (in millions)
FY 85 (to 30 September)	45	1,531,829	2.94	31	$81.4
FY 86 (to 30 September)	33	1,669,276	1.98	27	$75.0

AVIATION PERSONNEL NOTES

Comments of Note

During a recent speech to graduating aviation officers, Colonel Willis R. Bunting, Director of Aviation Proponency at the U.S. Army Aviation Center, Ft. Rucker, AL, made some comments of particular note. Colonel Bunting captured the essence of the traits needed to fulfill our mission of being prepared to fight and win on the battlefield. He encapsulated the true purpose of professional development.

"The value of Aviation Branch officers to the Army and to our Nation, now and in the future, will be their ability to meet the demands of combat," Colonel Bunting said. "Our officers must envision the nature of war and prepare themselves and their subordinates to fight and win. Our Aviation Branch must function with the other branches as a unified and coordinated team.

"Our goal for the Officer Aviation Branch Professional Development System is to strengthen and fortify the will, character, knowledge and skills of those who lead and support our aviation soldiers. All fundamental principles of leadership and officer development must apply to all Aviation Branch officers. Their personal character must be above reproach and instill professional values. They must have a warrior spirit, master the art and science of war, lead by example, build cohesive teams, coach, teach and mentor. Finally, we expect our officer aviators to be action-oriented and develop a broad base of general knowledge.

"Likewise, our highly competent professionals in the aviation enlisted force, both soldiers and noncommissioned officers, must train to accomplish the mission and lead by example. They must be tactically and technically proficient."

Colonel Bunting describes an accurate perspective for all of us in Army Aviation to adopt.

Aviation Logistics Issues

Use of Aviation Technical Inspectors, Military Occupational Speciality (MOS) 66: Prior to 1982 there was one technical inspector (TI) MOS, 67W, responsible for the varied airframes used by the Army. During the Vine Study it was determined that there was a need to have a separate TI MOS for each type airframe. As a result, the MOS 66 series was created. Since that beginning there has been both a shortage and a perceived shortage of 66 series inspectors. This has been one of the more pressing issues associated with career management field 67 (Aviation Maintenance). Initially, increased training requirements caused by the introduction of the new 66 series TI created a shortage of 66 series inspectors in the field. As of October 1986, the U.S. Army Aviation Logistics School (USAALS) has trained a sufficient quantity of 66 TIs to meet the needs in the field; but, we are still receiving reports of critical shortages of technical inspectors in many units.

Since January 1986 the Aviation Proponency Office at the Aviation Center has been monitoring the use of 66 series MOS soldiers, using the Military Personnel Center's (MILPERCEN) enlisted master file (EMF) data. This data has shown that 28.4 percent of soldiers having a 66 series MOS are working in jobs other than TI. This improper use is the chief cause of the current, perceived 66 series shortage.

Messages have been sent to major commands addressing this problem; yet the improper use rate has remained the same. Every attempt must be made to properly use these valuable assets. The 66 series MOS

soldiers have a critical occupational specialty that can only be awarded by resident training. It is imperative that these soldiers practice and hone their skills on a daily basis, and not be used as a crewchief or maintenance supervisor. Improper use of these soldiers will result in degradation of their highly perishable skills.

The training base is geared to train sufficient numbers of 66 series MOS soldiers to meet shortages caused by introduction of the 66 series MOS to the field. The solution is in place but we must execute the proper utilization action to see fruition.

Aviation Life Support Equipment (ALSE) Specialist, Additional Skill Identifier (ASI) Q2: The USAALS has received many inquiries concerning the availability of ALSE trained personnel (ASI Q2) and the feasibility of establishing an MOS for ALSE personnel.

The Aviation Logistics School will continue to assess the feasibility of establishing an MOS for an ALSE specialist. The need for a dedicated MOS is clear. But, end strength constraints and the inability to define a viable career progression pattern currently make its establishment untenable.

As noted, the availability of ALSE qualified personnel continues to be a concern in the field. There is a shortage caused by failure of units to request ASI Q2 qualified personnel and/or failure within units to identify soldiers who possess the ASI Q2. There are sufficient trained personnel in the force.

The solution is for unit commanders to document their Modified Table of Organization and Equipment to reflect positions they wish to use as Q2 and requisition personnel by specifying MOS and ASI, i.e., 67Y20Q2. MILPERCEN sources indicate that requisitions for Q2 qualified personnel are almost nonexistent. EMF data shows sufficient Q2 qualified personnel assigned to the field. For example, records at the Army Aviation Logistics School indicate that there were 191 individuals trained during FY 84/85.

Further questions regarding these issues should be addressed to:

U.S. Army Aviation Logistics School
ATTN: Proponency Office (SFC Orselli)
Ft. Eustis, VA 23604-5414
AUTOVON 927-6560/6563

Promotions

Congratulations and best wishes go to the following aviation lieutenant colonels recommended for promotion to colonel by the FY 86 promotion board:

Abbott, Michael H.
Blacker, Blair K.
Bodelson, Patrick J.
Boyd, Clinton B.
Cerone, Daniel T.
Duck, Theodore A.
Finch, Alfred J.
Forville, David R.
Fraser, James H.
Genetti, Thomas R.
Gerald, Stuart W.
Hagen, John F.
Hicks, David H.
Holcomb, Larry D.
Holder, James R.
Holtz, Douglas J.
Huff, William S.
Huizi, Richard A.
Johnson, Gary D.
Kemp, Jerry C.
Kerr, Robert D.
Loftin, William D.
MacWillie, Stephen
Maher, John C.
Malaney, Dempsey L.
McFarlin, Tommie A.
McLendon, Walter H.
Murphy, Billy G.
Murray, Howard A.
Oakley, Robert E.
Ostlund, Donald T.
Otis, John
Reeder, William S.
Shaver, William G.
Snelgrove, Alfred G.
Solomon, Mendel S.
Starr, Garrett C.
Turner, George H.
Watson, Don R.
Webb, Charles H.
Williams, Ronald N.

Entering into any new position can be a shakey experience that requires some adjustments. Here (also see page 35) is a laundry list provided as a guide to ensure the transition is smooth, efficient and successful.

TAKING CHARGE

Captain Johnnie A. Ham
USA Student Detachment
Fort Benjamin Harrison, IN

IT FINALLY HAPPENED. The day you've been waiting for. You walk out of the brigade commander's office in a daze, beginning to accept the reality of what you thought you heard.

"I've decided to give you a command. You're going to replace Captain Smith in A Company," the brigade commander said.

Command! The chance to do it your way, just as you've always hoped that you could!

Now what? You remember as a platoon leader going through a change of command and recall doing some sort of inventory. You also recall, from your dazed condition in the brigade commander's office, that you need to see the battalion commander for guidance. How do you go about *taking charge*? What must you do and what should you do?

"TAKING CHARGE" GUIDE

People
Daily Meetings
Sponsorship
Home Visit Program
Leader Notebook
Off-Duty Knowledge
Communications
Inspections
Reenlistment
Job Books
Physical Training
Idiosyncrasies
Awards and Punishments
Support Forms (67-8-1)
Community Counseling Center

Maintenance
Preventive Maintenance (PMCS)
Aircraft
Vehicles
Communications
NBC
GSE, ALSE
Property Accountability

Training
Training Schedules
ARTEP Tasks
Weapon Training Status
CTT/SQT
Driver and Equipment
Operator Training
Company Training Meeting
Afteraction Reports

Environment
Community
Afterduty Hours
Partnership Activities

Safety
Safety Records
High-Risk Aviators
Safety Philosophy

Here is one technique. It addresses the areas required by regulation, as well as those that allow a smooth handover. If used as a guide, as a starting point, you will find it quite helpful. It may need to be modified for your particular situation. (Note: Though this is designed for a company command, it applies equally well to a platoon, section, office or any leadership position.)

Before you get started, there are three people you must talk to: the current company commander, the battalion commander and the property book officer (PBO), in that order.

When you go to the current company commander remember he or she probably has given heart and soul to that unit. It also was that commander's dream, so tread lightly. Ask that commander about the battalion commander before you report to your future boss. Set up a tentative schedule to conduct the change of command and find a time to jointly see the PBO.

Your meeting with the battalion commander to receive guidance is required by regulation. The battalion commander is required to give you 30 days to conduct your inventory prior to accepting the guidon. So, you will have some time. Set a date and get a feel for upcoming major events. Be straight—remember the all important first impression.

Your last meeting is with the PBO. At division level, you will find the PBO in the division materiel management center. Listen and ask about problems company commanders have been having. Make sure you understand your responsibilities and liabilities.

OK, let's go. The guide at figure 1 is organized into five key areas: people, maintenance, training, environment and safety.

People

Daily meeting: Soldiers must know what their daily tasks are. Usually this is conducted with a brief daily meeting down to section level. Find out if it is being conducted, and if so how effective it is. Sit in on a few daily meetings at each level.

Sponsorship: Find out how the program is administered and who currently is participating in the program. It should be extended down to the lowest level.

Home visit program: Many units have home visit programs, especially overseas, to provide soldiers and their families living off-post a feel for living conditions. The program aiso offers a chance to discuss possible problems with the family members. Find out the

status and get a feel from informal discussions with the troops about how well the program is being received.

Leader notebook: All leaders in the unit should have a leader notebook giving the essential facts about their troops. Get as much as you can from the current company commander. There may be a battalion standard. If so, the best time to prepare the notebook is before the change of command, not after. Try to memorize some first names and homes of record.

Off-duty knowledge: Find out as much as possible about local "hangouts" and any special perks of each soldier.

Communications: How well does the unit communicate—vertically as well as laterally? What kind of relationship exists among the commanders and between the commanders and staff?

Inspections: In the "people" area, try to at least schedule the following inspections: barracks, Class "A" uniforms, soldier's CTA-50 equipment, and soldier's basic issue items. This will give you an insight into each soldier's motivation, attitude and professionalism. It also presents opportunities for those informal troop talks.

Reenlistment: Visit the reenlistment noncommissioned officer. Check out the reenlistment data cards to see if they are current. Find out who in the unit is in the reenlistment window and what special requirements these soldiers may have.

Job books: These must be inspected. They should be properly filled out. If they are not you may have a potential training problem.

Physical training (PT): Participate in this program if possible. Review the latest Army physical readiness test scores. Find out what the PT requirements are, if any are stated.

Idiosyncrasies: Learn about those of the battalion commander, the first sergeant, the platoon leaders, as well as the current company commander.

Awards and punishments: Review all awards and punishments given over the previous 6 months. If there are no records, you may have a potential morale problem.

Support forms (67-8-1): Review all officers' support forms. Conduct your initial brief with the battalion commander and put it in writing before you take charge of the unit.

Community counseling center: Make an appointment with the chief counselor. Find out what services are offered and what soldiers you may have in the program.

Personnel asset inventory (PAI): The PAI is a requirement. A good reference is DA Pamphlet 600-8-20, "The Commanders Guide to SIDPERS (Standard Installation/Division Personnel System)." The PAI is basically a face-to-face inventory of your future soldiers and their personnel records.

Maintenance

Preventive maintenance, checks and services (PMCS): Find out how well the soldiers know their manuals. Find out if there is a unit policy on the PMCS; perhaps who is authorized to sign off the PMCS as a supervisor.

Aircraft: Inspect and inventory each aircraft complete with the forms and records. Before you conduct the 2408-17 inventory, go to the local AVIM (aviation intermediate maintenance) unit and ask for a few specialists to go through a 2408-17 with you to ensure you know the identification of each component. After you are satisfied with this class, conduct the inventory on your company's aircraft jointly with the pilots and crewchiefs. Now your prior homework may pay big dividends as you get the opportunity to show your competency to your future troops. Lay out the flyaway gear separately and all at one time. Ensure someone in the unit is properly signed for the aircraft.

Vehicles: Inspect the equipment, all forms and records to include the DD Form 314, 2408-14 and 2404s. Review the document register and read the maintenance SOP (standing operating procedure).

Communications: Besides inspecting all the equipment, forms

and records, also complete all new communications security (COMSEC) hand receipts. If there are none, and there is COMSEC equipment in the aircraft or elsewhere, there is a problem. Solve accountability before signing for that company!

Nuclear, biological and chemical: Inspect and inventory. Check the 2404s on a few individual protective masks.

Ground support; field life support; and aviation life support equipment, and containers: Inventory and check records.

Property accountability: Ensure all property is signed for down to the user level. There should not be any nonexpendable shortages. All durable and expendable shortages should be noted and ordered. Take care of shortages through requisitions, cash collection vouchers, or if necessary, report of survey. Do this before you change command, not afterwards when it all belongs to you.

Training

Training Schedules: Find out how they are made and pull the file on the last 6 months. Try to get an indication on how well the unit prepares and executes its training.

Army Training and Evaluation Program (ARTEP) tasks: Make a list of the required ARTEP tasks of the unit. Have the current company commander give you a status on each task, such as *trained, needs practice* or *not evaluated.* Sure, any former ARTEP results will help, but the best evaluator probably will be that incumbent commander.

Weapon training status: Review the records and training plan for small arms qualification, to include the light antitank weapon, grenades and mines. Review the aircraft gunnery program—and each aviator's individual gunnery status.

Common task test/skill qualification test: Review the last test results, the job books and the training plan.

ITEP (individual training and evaluation program): This should be a household word to you. If not, get studying! Find out what the current standards are for the commander's evaluation.

Driver and equipment operator training: Discuss the current program. Check the 348 file against individuals' SF-46s. They should match. If not, this is a records keeping problem.

Company training meeting: The unit should be conducting company level training meetings, weekly or so, to plan several weeks out and to develop training schedules. An effective plan requires input from the platoon leaders, first sergeant, training officer, instructor pilots and others. Find out how these are conducted and how they translate goals into a training plan. Sit in on a few, if possible.

Afteraction reports: Get your hands on as many as possible, particularly of field training exercises and inspections. Try to look back over the last year to get a feel of the tempo of the battalion. Compare these with the commander's evaluation of the unit's training status. They should agree.

Environment

Activities, policies and general atmosphere of the installation: Key areas to investigate include partnership activities, parking policies, afterduty hour inspection requirements if stated, and especially the living conditions of the troops in the barracks.

Safety

Safety records: Numerous records are required for the safety program in the unit. You must take this program under your wing to make it work. It must be *your* program. Get briefings from your company safety officer and the battalion safety officer.

High-risk aviators: If the unit has any, get these identified up front. Find out what actions have been taken on high-risk aviators. Get to know these individuals and the specifics of their violations.

Prepare safety philosophy: Certainly a good start is with the current commander's statement, but do not simply copy it. As stated above, safety is important. It must temper your every plan. Put some thought into how you view the safety program and get some meaning into that philosophy statement.

This guide should help you to develop a plan to fully "take charge" of your new unit. Properly planned and executed, it will prepare you to step into a "fast moving train" and continue to carry its momentum forward. Hopefully it will minimize the loss of institutional knowledge as the current company commander departs. Above all, remember the words of Marshal De Belle-Isle, ". . . it was not for yourself that you were made a commander, but for the good of the service and the unit which has been confided to you. Let the glory of the nation thus be your primary preoccupation."

Congratulations and enjoy your dream come true.

ABOVE THE BEST

CW2 Gerald W. Bonds

Chief Warrant Officer, CW2, Gerald W. Bonds, Ozark, AL, recently was awarded the Soldier's Medal for heroic actions following a helicopter crash near Eufaula, AL.

CW2 Bonds, an evacuation pilot with the National Guard's 1133d Medical Company of Montgomery, AL, was presented the medal and citation by Brigadier General Tolly Pickett, chief of staff of the 167th Support Command (Corps) of Birmingham, AL.

The Soldier's Medal is awarded to U.S. Armed Forces' members who distinguished themselves by heroism not involving combat. The action must involve personal hazard or danger and the voluntary risk of life.

On 22 July 1983, CW2 Bonds was piloting a UH-1 Huey helicopter on the first leg of a routine training mission to Weedon Field at Eufaula. Also onboard were CWO Stephen M. Salisbury and Private Michael Culpepper, crewchief.

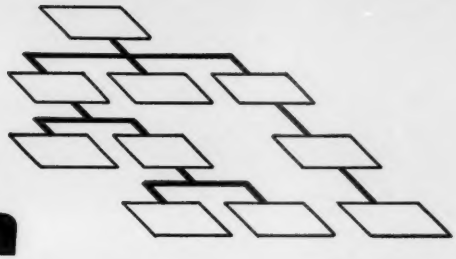
While maneuvering to enter the aircraft traffic pattern, the Huey's engine failed. The UH-1 crashed and began to burn on the median of U.S. highway 431 near Weedon Field.

CW2 Bonds freed himself from the wreckage and exited the aircraft. CWO Salisbury also freed himself, but, being injured and dazed, he managed only to drop from the cockpit onto the ground under the aircraft where he was in danger from the growing fire. PVT Culpepper remained in the aircraft in a near unconscious state.

Although suffering various lacerations, cracked vertebrae and compression fractures of both ankles, CW2 Bonds reentered the burning aircraft and removed PVT Culpepper to a position of safety away from the aircraft. He then returned to the helicopter and rescued CWO Salisbury.

After these courageous rescues CW2 Bonds, overcome by pain and fatigue, collapsed. Fortunately, all three recovered from their injuries and are still active in the Alabama Army National Guard.

Conducting a Unit Reorganization



First Lieutenant James W. Wallace
502d Aviation Battalion, 2AD
Fort Hood, TX

The ongoing Army of Excellence force modernization program places a great burden on many Army Aviation units during their reorganization to brigade-size elements. Reorganizing any military unit can be an arduous task and the lack of consolidated guidance in Army literature compounds the problem. This article is a result of the lessons learned in the 2d Armored Division Combat Aviation Brigade activation, and hopefully it will give other staffs at other times a starting point in the reorganization process. For us it all started when we were advised of our reorganization deadline:

Effective Date—12 months
RECEIPT OF ORDERS

UPON RECEIVING official notification to reorganize, the most prudent thing to do is to assemble a competent staff action committee. The commander or commander's representative of the reorganizing unit's next higher headquarters should chair the committee. Since this committee will be charged with tracking the entire reorganization process, its membership also should include representatives from each staff section of the higher headquarters. New committee members probably will be added to the list as the reorganization process continues, but a good example of the initial action committee might be:

- ☐ Assistant division commander,
- ☐ Reorganizing unit commander,
- ☐ Officer personnel manager,
- ☐ Comptroller,
- ☐ Force integration officer,
- ☐ Logistics officer,
- ☐ Facilities manager,
- ☐ Adjutant general,
- ☐ Staff judge advocate,
- ☐ Property book officer,
- ☐ Materiel management officer,
- ☐ Other concerned people.

The action committee should meet at least monthly for inprogress reviews until unit activation.

At the first committee meeting, all members should be tasked to come up with significant reorganization milestones in their areas of expertise. This brainstorming session should yield a large list of action items required to complete the reorganization, some of which are covered in this article. Members also should provide an associated suspense date with each item. This will make it easy to track completion status.

These action items should then be arranged chronologically and numbered for reference at each subsequent committee meeting. This method of compilation facilitates additions, deletions and changes

to the action item list. Once complete, each committee member should be given a copy of the action item list to encourage staff coordination on matters of mutual concern.

Next, obtain a plan for the new unit's structure. Usually, this will be provided by the Modification Table of Organization and Equipment (MTOE). If it is not provided with the reorganization orders, the committee force integration representative can assist in obtaining it.

The new MTOE for the reorganizing unit *must* be provided for action committee review as early in the reorganization process as possible. Doing so permits early identification and submission of required changes to the MTOE, thus precluding any possible degradation in unit operational readiness. In any event, the MTOE should be in hand *not later than 7 months prior to the effective date of reorganization* to allow necessary personnel and equipment requisitions to be made on schedule.

It is wise to plan at this time for new building space that may be required for reorganization. Early identification of additional billet, maintenance and administrative facility requirements to the committee facilities manager is critical. Once requisitioned, people and equipment will start arriving at the unit and the need for space becomes quite evident. After they arrive it's too late to expect a smooth process obtaining necessary space.

With adequate billet and storage space *properly* planned, the action committee should begin to establish new unit personnel and equipment fill requirements. Equipment requirements should consider MTOE, table of distribution and allowances, common table of allowances, and prescribed load list items; personnel requirements should address all military occupational specialties and specialty codes of the reorganized unit. These lists should be maintained as working documents that will change monthly based on new onhand totals in the unit.

One thought on personnel considerations, though: Don't forget currently assigned troops when it comes to filling new positions. Schooling assigned soldiers for new jobs will create an inplace cadre team, ready to assist in the unit reorganization.

Funding the reorganization is another area of concern. A check with higher headquarters should reveal fenced funds provided specifically for the reorganization. A good deal of time should be given to budgeting these funds for expenditures. If any problems arise in this area, the comptroller and his or her staff can be a great source of expertise on whom to rely.

Effective Date—7 months
REQUISITION TIME

This timeframe qualifies as the busiest during the entire reorganization. If all authorizations have been scrutinized and properly balanced against onhand totals, if adequate billet, maintenance and administrative facilities have been obtained, and if sufficient funds have been provided for the reorganization, then requisitions of personnel and equipment can be made. One last check to ensure that valid Department of Defense acquisition activity codes and unit identification codes have been established and used in requisitions can make this time less busy.

Also, during this period a good working relationship should be forged with the committee personnel and materiel management representatives. In the months just prior to reorganization, they can assist a great deal in obtaining personnel and equipment previously requisitioned.

An interesting note in this area concerns unit colors. If any hope at all is entertained of presenting the newly reorganized unit in a formal ceremony, the Army supply system must be shaken vigorously into action. During the 2d Armored Division Combat Aviation Brigade's activation process, the backlog of requisitions for unit flags and guidons was quite extensive. The U.S. Army Support Center at Philadelphia was inundated with requests that far exceeded their ability to supply. This led to a 5- to 6-month delay in colors shipment. As was the case in the 2d Armored Division, a 1-month margin for error caused more than a few people to worry. Of course, a formal ceremony does not have to take place on the effective date of reorganization; the issue of unit colors does deserve some attention, though.

It is during the 7-month timeframe that computation of basic load requirements for Class I, III and V supply also should be made.* For the unit to attain

*Class I: subsistence, including free health and welfare items.
Class III: petroleum and solid fuels.
Class IIIA: aviation specific petroleum and solid fuels.
Class V: ammunition of all kinds.
Class VA: aviation specific ammunition.

the proper operational readiness profile, this information should be coordinated with the committee materiel management representative. Usually, the figure is computed from a set of straight-forward formulas and should not be a problem in the reorganization process.

Publications accounts for the reorganizing unit should be established or changed as required. This is important because a good publications library can assist the unit to quickly attain operational readiness. Important subject areas to cover are operator's manuals (dash 10s), training manuals and regulations. These publications will be consulted the most during the reorganization.

The final item to address in this time period is training. Obviously, unit collective training will be hard to accomplish until a reasonable number of people and equipment are in place. But, this would be an ideal time for individual training with first-line supervisors (the previously mentioned cadre team). Activating units might need to piggyback on the other units' training events until their own equipment arrives, but training should be conducted nonetheless. The reorganizing unit commander's training goal should be successful completion of the post-reorganization Army Training and Evaluation Program (ARTEP).

Effective Date—1 month
MISSION COMPLETION

By this time, hopefully all previously suggested tasks have been accomplished. If not, the last month before reorganization is going to be extraordinarily hectic! Unnecessary confusion should be avoided, too, because the last few things that must be accomplished are among the most crucial to a successful reorganization.

For instance, in a major reorganization there probably will be some adjustment in the area of unit legal authority. This fact can be ascertained by the committee staff judge advocate representative who can help ensure that a smooth transfer of legal authority is made.

Close work with the committee adjutant general representative might also be necessary. He or she can help by ensuring that unit attachment and assumption of command orders are published on time. For practicality, the date of orders publication should generally coincide with the effective date of reorganization.

Also, some adjustment in unit equipment accountability probably will be required. This can range from a simple name change on a unit property book to a full-scale lateral transfer of unit equipment. The committee logistics, property book and materiel management representatives should work together in this area.

A thorough comparison of MTOE unit authorizations with property book onhand totals is wise prior to transferring equipment, however. Sacrificing the operational readiness of one unit for another through lateral transfers will only cause problems for the higher commander. If shortages in equipment exist, a percentage of fill basis should be used for allocating onhand equipment to units. Priority should be in filling equipment readiness code (ERC) A lines of equipment first, then ERC B, ERC C and so on in this manner.

The transfer of people to the new unit should be accomplished during this time period. Commanders of reorganizing units should provide input to the committee personnel representatives, detailing by name what persons go where by MTOE paragraph and line number. If the transfer is large, a briefing to the soldiers involved explaining their new duties may help lessen personnel turbulence. Again, the committee adjutant general representative can assist in publishing the orders for transfer.

The last step in the reorganization process is the "mission accomplished" report to higher headquarters. This is usually confirmed through the unit status report (USR) system. The regulations in this area offer some leeway to the commander in reporting the reorganizing unit's status. Unless otherwise exempted for instance, a reorganizing unit must report under its new MTOE not later than 3 months after the effective date of reorganization. There are other cases, however, and a review of the literature dealing with the USR report will outline the commander's options more precisely.

Submission of the first USR report after reorganization should indicate completion of the reorganization process. If all action items were handled in a timely manner, the report will be good and the new unit commander can get on with the business of preparing for the upcoming ARTEP!

ATC Update
Passing the Baton

Colonel Charles Woodhurst

When Colonel Woodhurst wrote this article he was commander of the U.S. Army Air Traffic Control Activity, Ft. Huachuca, AZ.

IN 1983, BY direction of the Secretary of the Army, aviation became a branch of the U.S. Army. Subsequently, the approved branch implementation plan identified air traffic control (ATC) personnel as part of the Army Aviation Branch.

The U.S. Army Communications Command, now the U.S. Army Information Systems Command (USAISC), has had mission responsibility for ATC since 1973. This responsibility included combat and doctrine development, command and control (C^2), operations and maintenance (O&M), limited personnel training, materiel development and centralized management.

Prior to aviation becoming a branch with responsibility for all aviation proponency, USAISC was the most functionally aligned agency to manage worldwide Army ATC. In August 1984, the commanding general of the Training and Doctrine Command (TRADOC), initiated an action to centralize all aviation proponency under the branch and its designated branch chief. By January 1985, based on recommendations from this initiative, the Department of the Army Deputy Chief of Staff for Operations tasked TRADOC with USAISC and the Army Materiel Command to conduct a review of the ATC system and make recommendations consistent with what is best for the Army. This review considered proponency issues, C^2 and O&M.

On 6 December 1985, the Department of the Army staff resolved remaining issues and the Vice Chief of Staff of the Army directed transfer of the ATC mission. Initially the ATC mission will be managed as follows:

Proponent. The Aviation Center, Ft. Rucker, AL, will be responsible for ATC proponency functions, including developing concepts, doctrine, tactics, techniques, procedures, organization designs, materiel requirements, training programs, training support, manpower requirements and related matters. Within the Aviation Center, a director of ATC will be responsible for Army policy for worldwide ATC standardization and facility management, flight evaluation, and program management for fixed base equipment. The relationship between the Aeronautical Services Office and the U.S. Army Air Traffic Control Activity will remain the same.

Combat Support. The 58th and 16th ATC Battalions will be transferred to Forces Command (FORSCOM). The 59th ATC Battalion will be transferred to U.S. Army Europe (USAREUR) and the 125th ATC Battalion to Eighth U.S. Army (EUSA). The Air Traffic Control Combat Support Activity (ATCCSA) of 7th Signal Command will be disestablished. Some ATCCSA spaces will be transferred to FORSCOM. The 5th Platoon, 57th ATC Company will be transferred to Western Command (WESTCOM).

Fixed Base. In continental United States (CONUS), the ATC sections located on post, camp and station airfields and currently assigned to the Directorate of Information Management, will be transferred to the

With aviation becoming a branch, air traffic control (ATC) personnel worldwide, ATC proponency functions and mission, Army ATC standardization policies and ATC management all now become the responsibility of the U.S. Army Aviation Center, the Home of Army Aviation. Here is how this transition will take place.

installations as part of the Directorate of Plans, Training, Mobilization and Security. In Europe and Korea the tables of distribution and allowances augmentation to the battalions will transfer to USAREUR and EUSA. The ATC section of Information Systems Command (ISC) Signal Battalion, HI, will be transferred to the 45th Support Group, WESTCOM.

Logistics. For combat support equipment in CONUS, the 256th Signal Company will be transferred to FORSCOM and continue to support tactical equipment (station to remain at Ft. Rucker). Any special requirements from commands other than FORSCOM that previously have been assigned to this unit can continue to be performed on a reimbursable basis. For Europe and Korea, the ISC Area Maintenance Supply Facility will continue to provide support based on a memorandum of agreement and on a reimbursable basis.

Operation of air traffic control systems is accomplished following approved doctrine, regulatory guidance, procedures and techniques set forth in Army publications. No significant change to these publications will be required as a result of this transfer. The intent of the transfer is to place aviation ATC units and activities under the control of the aviation commander they support.

All support services, i.e., maintenance and supply of ATC equipment, will be normalized in the existing combat support and combat service support structure to the extent possible within current resource constraints. Operations and maintenance of the ATC systems is a function of command and control. The proponent has the responsibility to ensure standardization. The materiel developer for ATC is Avionics Research and Development Activity and the life cycle manager is Communications Electronics Command. The transfer of ATC was scheduled to be complete on 1 October 1986. With the reassignment of ATC units to multiple major Army commands, the Army Aviation Branch will successfully meet the challenge to manage the worldwide ATC mission.

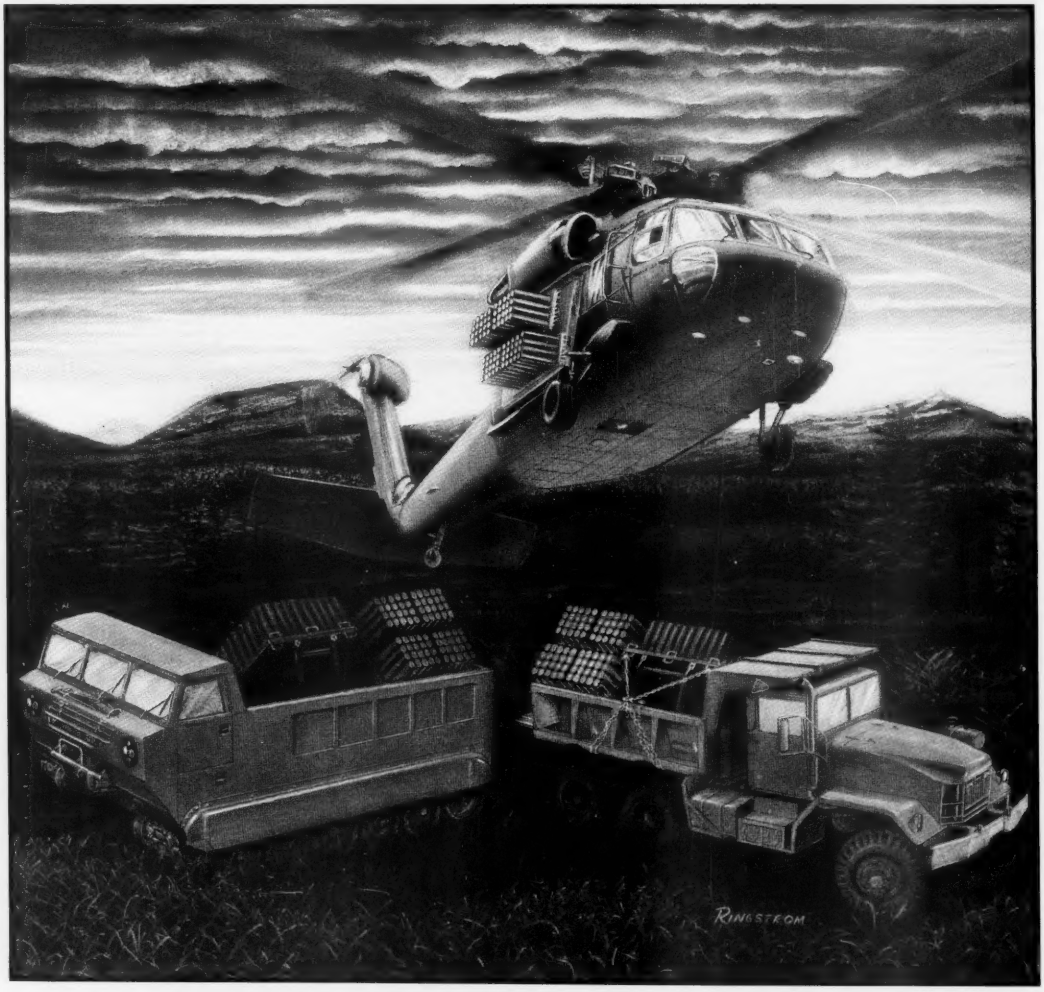
MONTHLY WRITING AWARD

Mr. Keith E. Aakre

Providing Army Aviation with a UH-60 Scatterable Mining Capability

Photos and artwork courtesy of Honeywell.

illustration by Bob Ringstrom



VOLCANO

THE INHERENT high mobility of military helicopters provides commanders with a combat multiplier capability that can be deployed rapidly to affect the battle at critical points and times. Maximizing the exploitation of these highly responsive Army Aviation assets within the air-land battle scenario has become the challenge for the new Army Aviation Branch and its organizations.

As Army Aviation becomes more closely integrated with ground maneuver and defines its role as a distinct combat arm, greater emphasis is being placed on increasing the helicopter's combat multiplier capabilities.

Since threat forces rely heavily on armored vehicles for mobility and combat power, a major Department of Defense priority has been the fielding of a variety of antiarmor systems. Missile systems such as TOW, Maverick and HELLFIRE; the M1 Abrams tank; the AH-64A Apache attack helicopter; as well as the Copperhead and sense and destroy armor precision munitions are highly publicized programs in the antiarmor arena. A somewhat less visible activity, but with an equally high priority, is the ongoing development and fielding of the family of scatterable mines (FASCAM).

The FASCAM concept provides a framework for understanding the varied but complementary scatterable mining systems. Its programs, set forth in figure 1, illustrate the breadth and versatility of modern mines. Current scatterable mines have a variety of benefits over earlier conventional landmines that are individually buried beneath the surface of the ground.

Scatterable mines can be quickly dispensed in a fraction of the time that landmine emplacement would require and automatically self-destruct at a preset time to allow for counterattack by friendly forces. Another key benefit of most scatterable mines is that the mine warhead is focused and actually penetrates the underside of the tank—thereby destroying it and killing or seriously injuring its crew.

Conventional landmines use only the blast effect of the explosive and normally only disable a tank by breaking a track. So, the result of a conventional mine encounter is that the tank and its original crew usually can be returned to battle within a field repair cycle. Also, FASCAM mines

FIGURE 1: Deployment of scatterable mines.

Delivery Mode	Delivery Mechanism	Antiarmor Weapons	Antipersonnel Weapons
Artillery	155 mm Howitzer M109, M198	RAAM M718/M741	ADAM M692/M731
Ground Vehicle	Towed Dispenser M128		
	Flipper Dispenser XM138	GEMSS M75	GEMSS M74
	Volcano Dispenser XM139	Gator BLU-91/B	Gator BLU-92/B
Aircraft	Gator Dispenser CBU-78/B CBU-89/B	Gator BLU-91/B	Gator BLU-92/B
Helicopter	SUU-13 Dispenser	M56	Not Applicable
	Volcano Dispenser XM139	Gator BLU-91/B	Gator BLU-92/B
Soldier Hand-Carry	Four Man Hand-Carry	MOPMS XM131	MOPMS XM131
	One Man Hand-Carry	WASPM XM84	PDM XM86

Allied Tank Losses to Mines as a Percentage of Losses to all Enemy Action:

Theater	Percent
North Africa, 1942–1943	18
Western Europe, 1944–1954	23
Italy, 1943–1945	28
Pacific, 1944–1945	34
Korea, 1950–1951	56
Vietnam, 1967–1969	69

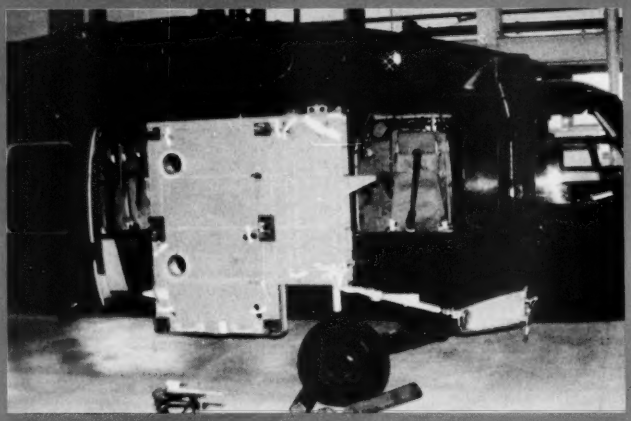
Armor Casualties in World War II by Cause:

Theater	Percent
Artillery and antitank weapons	58.8
Mines	23.7
Bazookas	17.0
Miscellaneous	.5
Total	100.0

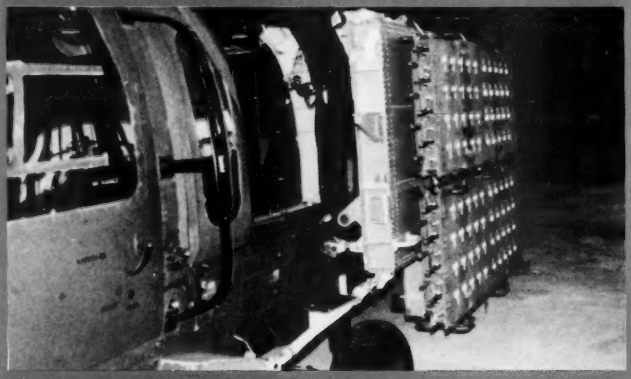
FIGURE 2: Effectiveness of mines.

do not require track or vehicle pressure to detonate. The magnetic sensor and electronics in the FASCAM mine senses when the vehicle is above the mine and attacks its underside. This feature allows for greater lethality and increased acquisition capabilities across the vehicle's front.

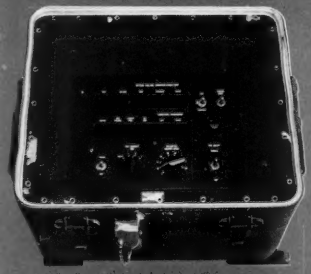
Figure 2 reflects that the historical effectiveness of mines against armored vehicles is indeed impressive. Analyses and field testing of FASCAM mines show even greater effectiveness than the pressure activated landmines used in earlier conflicts. And, when FASCAM mines are employed in concert with direct fire weapons such as TOW, tanks or attack helicopters, a real antiarmor synergism results. If enemy armor elects to maneuver in response to the direct fire threat it will incur heavy minefield losses. But, if enemy forces attempt to clear a lane through the minefield,



mounting hardware



launcher racks



dispenser control unit

FIGURE 3: Elements of the Volcano system.

- XM87 Mine Canister—Expendable Class V Supply Holds Six Mines
- XM139 Dispenser—Reusable Class VII Supply Consists of Launcher Rack, Control Unit, Mounting Hardware
- Mounting Hardware—Connects to Vehicle, Holds up to Four Racks
- Launcher Rack—Holds up to 40 Canisters, Use 1, 2, 3 or 4 per System, Connects to Mounting Hardware
- Control Unit—1 per System, Provides Fire Signal, Tests System

the friendly direct fire weapons are provided with slow moving and concentrated targets.

Also, the delay and psychological effects of a minefield on the enemy are highly significant. The momentum of an attacking force, as well as its echelon formation, can be rapidly destroyed with an obvious resulting command and control problem in communicating altered plans. As any survivor of a booby trap or minefield will attest, optimism and aggressiveness evaporate quickly when a unit finds itself in the middle of an enemy minefield.

The only U.S. helicopter-dispensed scatterable mining system yet to be made operational is the M-56, which was fielded in limited quantities. A total of 160 antiarmor mines from two UH-1 Huey mounted dispensers can provide, typically, a 20- by 300-meter minefield in a single pass. But, some limitations of the M-56 system are evident:

- The M-56 mine is a pressure-fuzed track breaker that will only temporarily disable a tank.
- The mines, in order to be properly aligned upon impact, must right themselves in the air, which requires a minimum aircraft altitude of 100 feet for dispensing.

To improve on the above mentioned shortcomings and field a more capable mine and mine dispensing system, the U.S. Army initiated the Volcano program. The overall combat developer responsibility for Volcano is with the U.S. Army Engineer School at Ft. Belvoir, VA, with aviation user support furnished by the U.S. Army Aviation Center at Ft. Rucker, AL.

The materiel developer for the Volcano system is the Project Manager for Mines, Countermine and Demolitions of the U.S. Army Armament, Munitions and Chemical Command with developing agency responsibility residing within the Fire Support Armament Center of the Armament Research and Development Engineering Center.

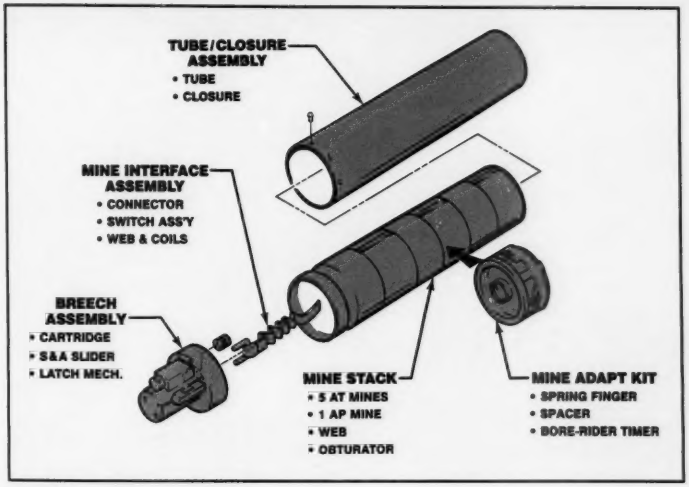


FIGURE 4: XM87 mine canister.

In the concept stage, Volcano was required to meet several key system attribute requirements. The system was to be modular to make it adaptable between various ground and air host vehicles and to reduce procurement costs. It was required to use previously developed scatterable mines to reduce development costs and provide for economical production. To reduce logistics requirements, the system was required to be highly reliable and use expendable mine canisters.

The development contract for the Volcano system was awarded to Honeywell, Inc., in 1983. The ground vehicle mounted system has completed development testing/operational test (DT/OT) 1 with type classification for limited production (TC-LP) currently planned for the fourth quarter of fiscal year (FY) 1986. The completion of the TC-LP action will allow the Army to initiate limited production of canisters and delivery systems when funds become available in FY 1987. Standard type classification of the system for ground vehicle and UH-60 Black Hawk use is planned to be completed in October 1987 following DT/OT II on various cargo and engineer dump trucks as well as the UH-60.

The main elements of the Volcano system are illustrated in figure 3. A dispenser control unit (DCU) provides the firing control function and sequences the canister firing. The mounting hardware, which is the only application unique system element, provides a support for up to four canister racks. Each canister rack provides mounting for 40 mine canisters. Each canister contains six mines, five being antitank and one antipersonnel (figure 4). The system can, therefore, dispense up to 960 mines when in a fully loaded four-rack configuration. The empty canisters are designed to be expendable to reduce logistics requirements.

FIGURE 5: The Volcano system mounted on the UH-60 Black Hawk.

Since the system is modular, the same DCU and one or two canister racks could be qualified as part of a preplanned product improvement effort on other host vehicles without modification. Also, if the vehicle is weight-limited, partial loading of the rack can be done without affecting firing sequences because the DCU automatically skips over empty rack slots during firing.

The Volcano system uses the same highly effective Gator antitank and antipersonnel mines that are dispensed from high performance aircraft by the Gator (CBU-89/B) system. This commonality reduces development and production costs while providing a true tank destruction capability and tripline activated antipersonnel mines.

Figure 5 shows that the UH-60 Volcano system mounting concept places the mounting hardware with launcher racks and canisters externally on the UH-60 external stores support system hardpoints. All UH-60s beginning with Army serial number 83-23837 have hardpoints, with earlier aircraft currently slated for upgrade in the future.

Extensive input from the U.S. Army Aviation Systems Command, Sikorsky Aircraft, and the Aviation Center user representatives have shaped the mounting concept. Key design issues include rack jettison, crew egress and other safety-of-flight studies normally involved in the qualification of aircraft systems.

The operation of the system is simple. Once it is installed in a vehicle or aircraft, the DCU is programed by the operator with the selected dispensing speed and the mine self-destruct time that is desired. The operator aligns the vehicle with the delivery axis and manually maintains the designated speed.

After the operator initiates dispensing with a cyclic or hand controller switch, the DCU automatically fires canisters in a prescribed sequence on alternating sides of the vehicle to achieve the desired minefield density. The DCU firing signal detonates the mine canister propelling charge, somewhat like a shotgun shell, which expels the mine stack from the canister. As the mines clear the end of the canister, the arming signal and self-destruct time signals are sent to the mines through the strap-like web that is interlaced between the mines. As the mines continue away from the canister the interlaced web pulls tight and flips the mines into a dispersed pattern. The firing and dispersion sequence is shown in figure 6.

The major advantage provided by the UH-60 Volcano system is the ability to deliver up to 960 mines at altitudes down to and including nap-of-the-earth and while traveling at airspeeds of from 20 to 120 knots. For example, a 1,000-meter-long minefield with a frontal density of more than (.9) mines per

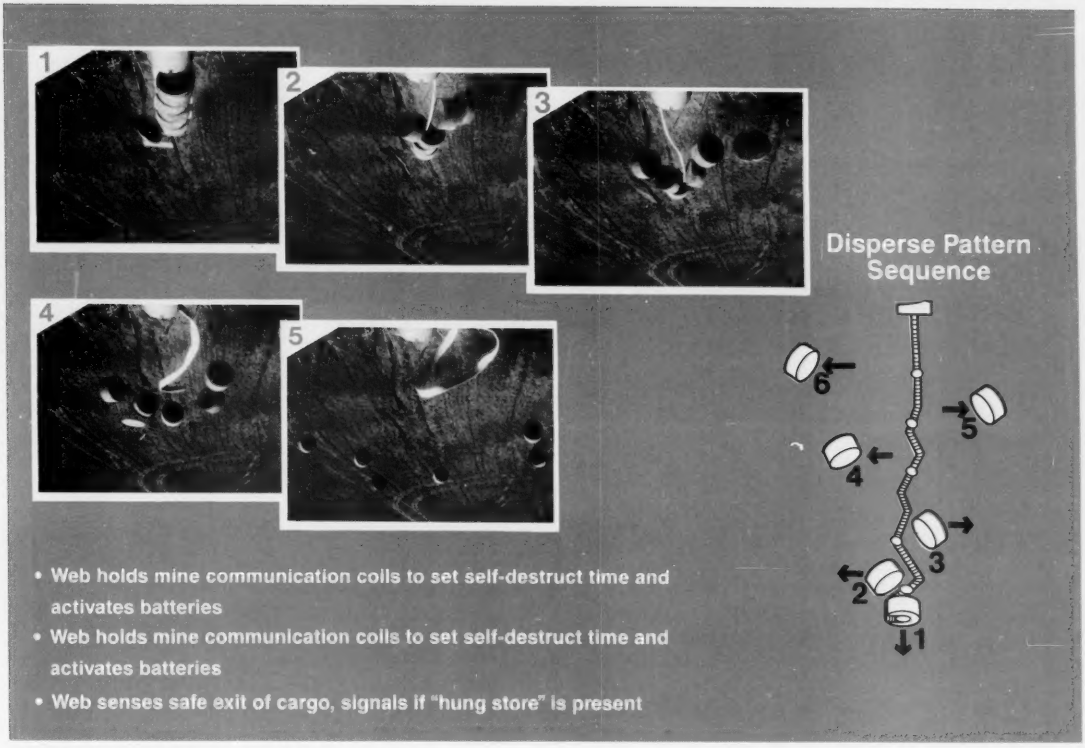


FIGURE 6: Launching and dispersing sequence.

meter can be produced in less than 17 seconds from a UH-60 flying at 120 knots. This rapid dispensing capability offers great tactical utility to ground and combat aviation commanders.

Employment of the UH-60 Volcano provides a means of frustrating threat mobility, speed and echelonment by delaying, destroying and disrupting orderly operations. In a deliberate defense scenario, ground vehicle Volcano mines can be employed on likely enemy avenues of approach.

In the main battle area or in covering force or delay operations, mines could be quickly employed by UH-60 to canalize, delay or direct enemy armor for destruction by other antiarmor systems. In the offense, flanks can be secured rapidly by UH-60 mounted Volcano in the movement to contact or attack. Also, enemy withdrawal routes can be blocked and area denial accomplished by Volcano helicopter mining activities. Since the system dispenses tripline activated antipersonnel mines along with antitank, the minefield has a "self-covering" capability which discourages mine clearing or reconnaissance by ground troops.

The Volcano system also has significant growth potential insofar as payloads are concerned. While the present focus is on the delivery of scatterable mines, the capability to scatter payloads such as smoke canisters or expendable electronic warfare jammers is obvious.

The UH-60 Volcano system will provide commanders with a rapidly deployable combat multiplier that does not require aircraft modification. Initial fielding is planned to the 9th Infantry Division in December 1988. The planned issue for divisional units is three systems to each combat support aviation company or designated combat aviation company. The flexible Volcano antiarmor and antipersonnel mining system promises to greatly enhance the capabilities of light forces as well as combat aviation generally.

ABOUT THE AUTHOR

Keith Aakre is a Honeywell employee and also serves with the Minnesota Army National Guard as ADAO 47ID.

U.S. Army Information Systems Command
ATC ACTION LINE

USAASO Answers Your Questions

CW4 Lawrence K. Hanna
U.S. Army Aeronautical Services Office
Cameron Station, Alexandria, VA

U.S. Army Aeronautical Services Office receives many questions concerning instrument procedures and again has decided to publish the more frequently asked ones.

I am being radar vectored to the final approach course for an instrument approach in instrument meteorological conditions. Then I experience a complete loss of communication and begin my lost communications procedures. I am within 25 nautical miles of the facility and my altitude is lower than the minimum safe altitude (MSA) or the procedure turn altitude. What action, if any, is appropriate regarding my altitude?

You are expected to climb immediately to the MSA as depicted on the approach chart or if on a feeder route to the minimum instrument flight rules (IFR) altitude and proceed directly to the initial approach fix and execute an instrument approach.

I receive holding instructions to hold at "X" intersection. Does my initial outbound leg have to be flown for 1 minute?

The initial outbound leg of a holding pattern at or below 14,000 feet mean sea level (MSL) should be flown for 1 minute, but known adverse winds may make it necessary to extend or reduce the 1 minute outbound leg to achieve as close as possible to a 1 minute inbound leg. Above 14,000 feet MSL, this leg should be flown for 1½ minutes.
NOTE: International Civil Aviation Organization rules differ in that they time the *outbound* leg from 1 to 3 minutes.

When executing a precision approach, ground controlled approach (GCA) at an Army airfield and the controller says "at decision height," do I execute my missed approach at that time or when my altimeter reads the decision height (DH) altitude?

When the GCA controller calls out DH the purpose is twofold. The first is to alert the pilot to the fact that he or she has arrived at the point in the approach where the pilot must decide to land or to go around as the situation dictates. The second purpose is that it signals a change in the type of information provided by the controller. The controller then provides only trend information, omitting any reference to heading corrections. Depending on the specific criteria established for the approach and radar alignment procedures, the controller is largely dependent on judgment in the call of DH. The most accurate method of determining actual decision height is a combination of altimeter reading and the "on glide path" call of the controller. The pilot is not required to execute a missed approach when the controller calls "decision height"; however, it is the pilot's decision to make the proper determination based on all available input from a combination of aircraft instruments and verbal transmissions by the radar controller. If there is a large disparity between what the controller calls as DH and your altimeter, recheck altimeter setting; inform controller so that radar can be adjusted or controller training modified; after landing, write up altimeter in DA 2408-13 if needed.
NOTE: Air Force and Navy bases have different equipment and when they call DH, the decision to land or execute a missed approach should be made at that time.

In the IFR Supplement Legend, item 22 clearance status, lists: a, Aerodrome of Entry (AOE); b, Foreign Clearance Base (FCB); c, Landing Rights Airport (LRA). What exactly do they mean?

a, AOE—An international airport where U.S. military aircraft may land without the permission of U.S. Customs, but a notice of arrival must be furnished to the U.S. Customs at least 1 hour in advance of arrival.

b, FCB—U.S. Air Force bases designated as entry and departure points for travel to and from foreign countries. These bases provide overseas aircrew briefings, weather facilities and U.S. border clearance facilities.

c, LRA—An international airport where U.S. military aircraft may land, but a request for permission to land must be submitted to U.S. Customs at least 1 hour in advance of arrival.

Further information on this subject may be obtained in the U.S. section of the Air Force Foreign Clearance Guide.

If additional questions or comments concerning the interpretation of U.S Army regulations or the Federal Air Regulations arise, feel free to contact the U.S. Army Aeronautical Services Office, AUTOVON 284-7773.